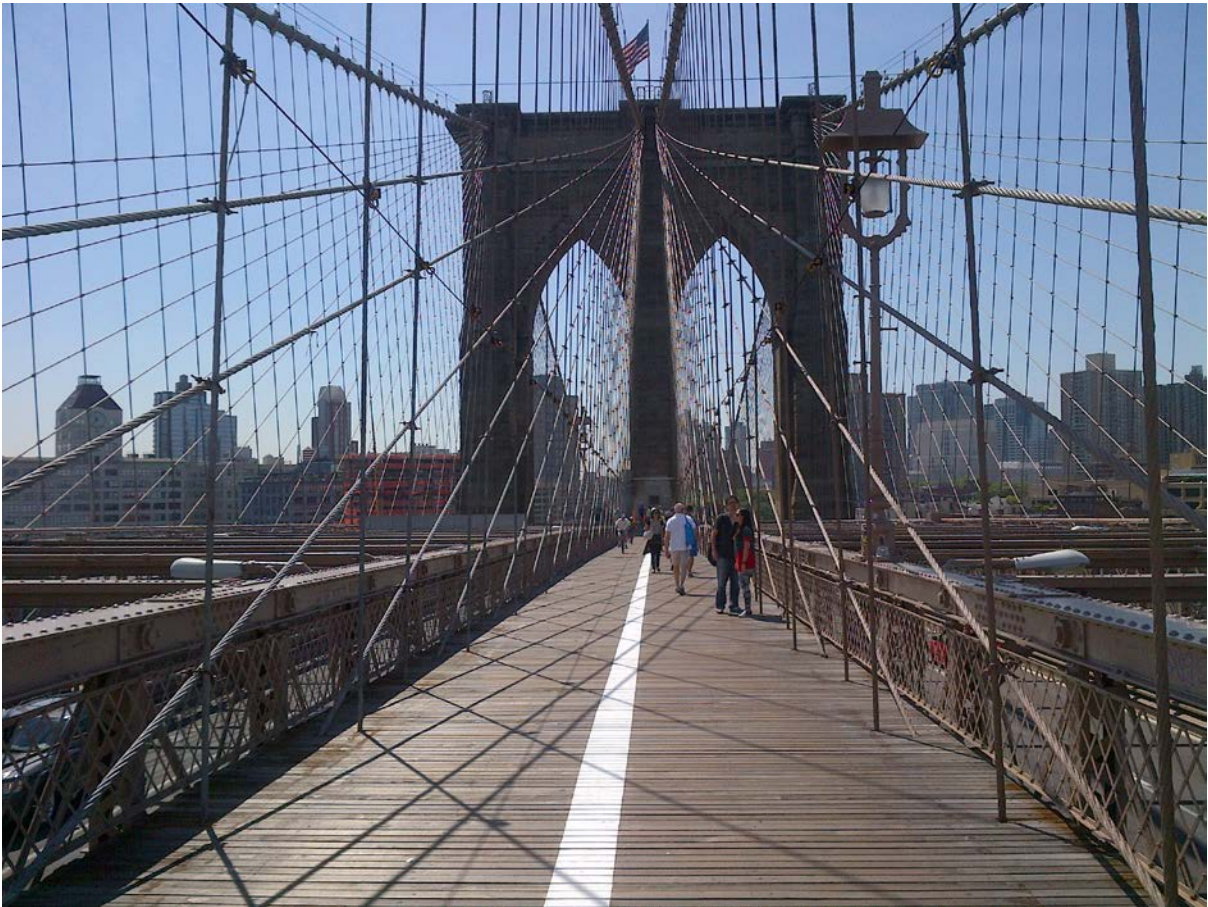




**NEW YORK CITY DEPARTMENT OF TRANSPORTATION  
DIVISION OF BRIDGES  
2014 BRIDGES AND TUNNELS ANNUAL CONDITION  
REPORT**



Brooklyn Bridge Walkway and Bicycle Path in June 2014. (Credit: Earlene Powell)

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### **Cover Photograph**

Ten projects made possible by the American Recovery and Reinvestment Act of 2009 and/or displaced funding made available due to the Act: Bruckner Expressway Bridge, Ward's Island Pedestrian Bridge (Credit: Nicole Garcia), Brooklyn Bridge, East 8<sup>th</sup> Street Access Ramp Bridge, East 14<sup>th</sup> Street Pedestrian Bridge, Staten Island Ferry Ramps, Greenpoint Avenue Bridge (Credit: Sergey Parayev), Midland Avenue Bridge, East 174<sup>th</sup> Street Pedestrian Bridge, and Claremont Parkway Bridge.

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## A Message from the Commissioner



Dear Friends,

On behalf of the many dedicated men and women who staff the Division of Bridges, I am pleased to present the 2014 Edition of the New York City Department of Transportation's Annual Bridges and Tunnels Condition report as mandated under the New York City Charter. This report provides DOT with an opportunity to display the many achievements, innovations and improvements that were realized by the Division of Bridges in 2014.

DOT focuses on equitable service delivery through its maintenance of critical transportation infrastructure and its commitments to safety and mobility for all New Yorkers. DOT focuses on providing all its services, including bridge maintenance, in an equitable manner.

The Division of Bridges includes 832 hard working professionals who manage the City's Capital Bridge Program, conduct bridge inspections and monitoring, and keep the entire bridge network in a state of good repair. Our inventory includes the iconic East River Bridges, Harlem River Bridges, the Belt Parkway Bridges and pedestrian bridges and elevated roadways across the five boroughs.

To underscore the critical importance of infrastructure investment, City, State, and Federal governments contributed more than \$5 billion to bridge reconstruction over the past years. As a result, for the first time in DOT history, all of our 789 bridges are rated "Fair" or above.

The new design for the City Island Bridge, the only link between the Bronx mainland and New York City's historic seaport community, is a perfect example of a clean design with elements inspired by the current bridge, unobstructed views of Pelham Bay Park and Eastchester Bay, and a less expensive price tag – speaks volumes about the perseverance, creativity, and professionalism of the DOT team.

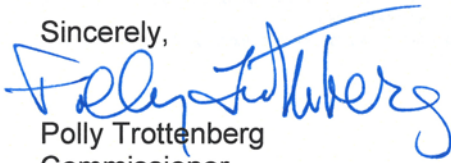
In November, we initiated the reconstruction of the Harlem River Drive Viaduct over 127<sup>th</sup> Street. This \$150 million project including \$85 million in Federal funds, will add at least 75 years of life to the structure through a full replacement, and the new viaduct and roadway will be designed to improve traffic safety and flow.

We will start construction in FY16 on the Belt Parkway Bridge over Mill Basin in Brooklyn and the Macombs Dam Bridge in the Bronx, and we will break ground this summer on the reconstruction of the Roosevelt Avenue Bridge over the Van Wyck Expressway in Queens.

Many other accomplishments are outlined in the pages ahead, but there is even more important work to be done. The Independent Budget Office recently reported that a significant number of bridges are now rated at the low end of “Fair”, meaning their need for rehabilitation is fast approaching. All of the East River Bridges are well over 100 years old, requiring continual care and attention. The remaining network of over 700 bridges serving neighborhoods across the city are subject to the continuing effects of heavy traffic and rough winters with long cycles of ice, snow, rain, sleet and de-icing activities. Aside from the East River and Movable Bridges, a replacement program of 16 bridges per year needs to be in place to maintain a 50 year life cycle. The current average life of our bridges exceeds 70 years. For New York City to create jobs and opportunities for our residents, and maintain its competitiveness with other leading global cities, we need to invest in our infrastructure.

DOT is committed to preserving all of the City’s bridges; they are crucial links in our transportation network and support millions of multi-modal trips each day. The Agency has a rich tradition of bridge design, construction, maintenance and administration, and will continue to use its resources and attract additional funds to provide safe spans that meet the needs of all 8.4 million New Yorkers.

Sincerely,



Polly Trottenberg  
Commissioner

**Inventory**

In calendar year 2014, the inventory of bridges under the jurisdiction of the Division remained at 789. NYCDOT owns, operates, and/or maintains 760 non-movable bridges, 24 movable bridges, and five tunnels. Over the past 10 years, there has been a decline in the number of bridges rated “Poor,” and an increase in the number of bridges rated “Very Good,” as shown below.

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
<b>Poor</b>	<b>4</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>4</b>	<b>4</b>	<b>3</b>	<b>1</b>	<b>1</b>	<b>0</b>
<b>Fair</b>	458	456	459	455	456	462	459	460	456	<sup>1</sup> 456
<b>Good</b>	210	210	215	213	209	207	215	212	217	221
<b>Vgood</b>	<b>118</b>	<b>118</b>	<b>111</b>	<b>116</b>	<b>116</b>	<b>113</b>	<b>109</b>	<b>114</b>	<b>114</b>	<b>111</b>
<b>Closed</b>			1	1	1	1	1	1	1	1
	<b>790</b>	<b>787</b>	<b>789</b>	<b>788</b>	<b>786</b>	<b>787</b>	<b>787</b>	<b>788</b>	<b>789</b>	<b>789</b>

In 2004, 32 Department of Parks and Recreation structures, 1 Department of Education structure, and 7 Division of Ferries structures were absorbed into the inventory. 30 of these additions (22 from Parks, 6 from Ferries, and the 1 from Education) were rated “Fair,” which accounted for the increase in Fair rated bridges. 1 of the Parks additions, Flushing Meadow Park Pedestrian Bridge over Willow Lake and 76<sup>th</sup> Road, was rated “Poor.” It has since been closed.  
<sup>1</sup>In 2009, the newly “Poor” rated Hill Drive Bridge in Prospect Park was closed to vehicular traffic. In 2009, 93 of the Parks bridges accounted for 20.4% of the “Fair” rated structures. In 2013, 100 of the Parks bridges accounted for 21.9% of the “Fair” rated structures.  
<sup>1</sup>In 2014, 104 of the Parks bridges accounted for 22.8% of the “Fair” rated structures.

NYCDOT has no bridges rated “poor.”

**Contract Acceleration**

Acceleration measures are a contract provision used in some reconstruction projects that is implemented through a contract pay item. This contract provision provides a mechanism to implement measures to accelerate the contractor’s work to maintain critical path milestones. This provision does not apply to measures undertaken by the contractor to make up for time it lost in the progress schedule. Only the NYCDOT representative invokes this provision when the contract schedule is compromised due to unforeseen conditions during construction that are out of the contractor’s control, and when it is deemed in the City’s interests to accelerate.

Incentive and disincentive (I/D) clauses are another contract provision used in some reconstruction projects that are implemented through a contract pay item. Under this provision, the contractor is compensated a certain amount of money for each day if the identified work in a critical milestone is completed ahead of schedule and is assessed a deduction for each day the contract overruns the allocated time. The amounts for the I/D clauses are based upon such items as traffic safety, maintenance and road user delay costs, Resident Engineering & Inspection (REI) expenses and cost of traffic enforcement agents. These amounts are implemented in accordance with guidelines established by Federal Highway Administration (FHWA).

**East River Bridges Anti-Icing Program**

The Division’s Anti-Icing Program uses the liquid chemical potassium acetate and aggregate chemical sodium acetate. The anti-icing fleet consists of twenty-two application trucks, five plow trucks and several smaller plows. Ten of the spray trucks are combination spray/plow trucks with a 1,000 gallon tank capacity, and five are spray-spreader/plow trucks with a 360 gallon spray capacity, and a nine cubic yard spreader capacity. There are twenty chemical storage tanks, with a total storage capacity of 114,250 gallons.

In the winter of 2013-2014, a total of 107,200 gallons of potassium acetate and 182 tons of sodium acetate were applied on the roadways of all four East River Bridges.

### **Marine Borer Remediation**

In October 1999, the Department began a study to assess the present damage caused by marine borers as well as the potential for future damage at several waterfront DOT structures, including the supporting structures of the relieving platforms along the FDR and Harlem River Drives, and the timber piles and structures of the Carroll Street and Ocean Avenue bridges in Brooklyn. The underwater inspection of timber piles supporting the FDR Drive began on May 8, 2000. Inspection of the Brooklyn sites was conducted during the week of October 23, 2000. The inspections were completed in October 2000, and the Marine Borer Evaluation Report was published in June 2001. Using the results of the underwater inspections, preliminary plans were developed for the implementation of repairs and remediation measures to protect the structures from attack. These preliminary plans were completed in December 2001. An updated underwater inspection was performed within the limits of the proposed contract in 2009. The construction work commenced in April 2012, and is expected to be complete in August 2016.

### **2014 Awards**

In 2014, the outstanding work of the Division was recognized by the receipt of several awards.

In March 2014, the American Council of Engineering Companies of New York selected the St. George Ferry Terminal Ramps Rehabilitation for a Gold Award in the structural systems category in its 2014 Engineering Excellence Awards. The Belt Parkway Bridge over Fresh Creek Basin reconstruction and the St. George Ferry Terminal Ramps Rehabilitation projects were selected for Platinum Awards in the transportation category, and the Bruckner Expressway Bridges over Amtrak project received a Gold Award in this category.

In June 2014, in recognition of his outstanding contributions to the status of the civil engineering profession, Deputy Commissioner Robert O. Collyer was presented the Herbert Howard Government Civil Engineer of the Year award by the Metropolitan Section of the American Society of Civil Engineers.

The 2014 Prize Bridge Awards Competition is conducted by the National Steel Bridge Alliance. The program honors outstanding and innovative steel bridges constructed in the U.S. The Willis Avenue Bridge won the 2014 Prize Bridge Award in the Movable Span category, and also won a commendation for accelerated bridge construction in the Movable Span category. The awards were described in the June 2014 issue of Modern Steel Construction.

The dedication and hard work of all members of the Division ensures that the Department is stronger than ever and more capable than ever to meet the challenges of maintaining a diverse and impressive bridge infrastructure.



## ***DIVISION OVERVIEW***

As an integral part of New York City's Department of Transportation, the Division of Bridges has a two-fold mission: to maintain an optimal transportation network by ensuring smooth mobility on the city's bridges, and to ensure the safety of the public.

The New York City Department of Transportation's Division of Bridges is comprised of four major bureaus. The **Chief Bridge Officer** is responsible for formulating policy and providing executive direction. He oversees all aspects of the design, construction, rehabilitation and reconstruction, maintenance, operation and administration of the 789 bridges (including 5 tunnels), and 53 culverts presently under the jurisdiction of the New York City Department of Transportation (NYCDOT). In addition to broad supervision, the Chief Bridge Officer also provides overall executive and administrative direction for the Division of Bridges, and ensures that all contractors are promptly paid.

Reporting to the Chief Bridge Officer, the **Community Affairs Unit** maintains liaison with elected officials, community boards, community groups, and civic/neighborhood associations. The Unit takes a pro-active approach in addressing design issues, roadway closures, and detours by reaching out to communities prior to the onset of construction. This enables the Division to proceed with its rehabilitation program with community input, and allows the Agency and its contractors to co-exist in a more harmonious manner with the community surrounding the project. Issues and problems of concern to the communities are brought to the attention of the appropriate Division personnel and addressed.

The **Bureau of Bridge Maintenance, Inspections and Operations** employs almost 500 engineering, professional, administrative, and skilled trades employees in the maintenance and smooth operation of New York City's elevated infrastructure, and in specialized skilled trades and contract supervision functions. It is composed of six major sections:

The **Flag Engineering** section is an engineering group that reviews, routes, and tracks hazardous or potentially hazardous safety and structural conditions ("flags") in or on the city's 789 bridges (including 5 tunnels). The Flags staff is on call 24 hours a day to respond to bridge emergencies. The section can be alerted to flag conditions by city and state inspectors and other sources, such as the Communications Center. All conditions undergo an evaluation involving review of the flag report and photographs of the condition, and, if necessary, a visit to the site. Subsequently, a "flag packet" describing the type of repair or response that is required is created and routed to an appropriate group, in-house or contractor, for elimination. The section monitors the status of each flag, reporting on all activities on a monthly basis.

The **Bridge Repair and Preventive Maintenance** section is composed of three major units. *Bridge Repair* performs repairs to resolve flagged conditions. Flag repairs include structural and safety work, such as the repair of steel members damaged by corrosion or accident impact, the replacement of box beams and bridge railings, the replacement of roadway gratings, repairs to traffic control devices, and the rebuilding of wooden walkways. Much of this work is performed in the off-hours, either to accommodate traffic or in response to emergencies.

This section also rehabilitates and replaces damaged, worn, or defective components whose failure can affect service. This type of work, known as corrective repair, primarily involves the electrical, mechanical and operational control systems for the twenty-four movable bridges, as well as the travelers (movable underdeck access platforms) on the four East River bridges. The Bridge Repair Section is also responsible for the lubrication of the movable bridges as well as the mechanical components and the main cables of the East River bridges.

*Preventive Maintenance* is a vital part of the overall bridge program. This section is responsible for functions including debris removal; mechanical sweeping; pointing of masonry brick and block; and emergency response, such as snow removal, oil/cargo spills, and overpass hits. The section

also performs some corrective repair work such as asphalt and concrete deck repairs, sidewalk patching, fence repair, and brick and masonry repairs. Preventive Maintenance is responsible for conducting the Department's anti-icing operations on the four East River bridges.

The *East River and Movable Bridges Preventive Maintenance* unit administers federal funds for selected preventive maintenance activities on the East River and movable bridges. Work is performed with a combination of in-house and contracted personnel.

The ***Bridge Inspections and Bridge Management*** section performs three essential functions: *Bridge Inspections, Bridge Management, and Research and Development.*

The *Inspections Unit* inspects the city's bridges in accordance with state and federal standards; monitors bridge conditions with a high hazard potential, such as temporary repairs, outstanding flags, and fire hazards; responds to emergency inspection requests from NYCDOT and external sources; recommends repairs and remedial measures for hazardous conditions; generates flag and inspection reports for the Division; engages in special programs such as non-destructive monitoring of sensitive bridge components by advanced techniques; supervises inspections by consultants working for the Division; conducts inspections and inventories of expansion joints; conducts acoustic emission monitoring; and inspects non-structural cladding.

The *Bridge Management Unit* develops and maintains the database for the City's bridge inventory, condition ratings, and inspection information. The unit is also responsible for maintaining records of privately-owned bridges in the City. The database is the source of information used in a variety of reports, including the present Bridges and Tunnels Annual Condition Report. This unit uses the bridge and span condition database to determine current and future needs for bridge rehabilitation, bridge component rehabilitation, flag forecasting, inspections and monitorings.

This Section is also responsible for investigating new materials and methods to improve existing bridge conditions. It sponsors a series of lectures by experts on subjects relevant to design, construction, and maintenance, such as seismic retrofitting of bridges, salt substitutes, cathodic protection against corrosion, concrete patching materials, new paint strategies, non-destructive bridge testing, and deck resurfacing. The unit also participates in research programs with interested transportation and infrastructure entities. In conjunction with the Port Authority, MTA Bridges and Tunnels, and NYS Bridge Authorities, it sponsored a report on suspension bridge cables that led to a federal project for the entire United States. A number of articles on bridge management are published by the unit in technical journals in the United States, Japan, France, and elsewhere. This section created the system for generating bridge inspection reports with portable computers; a similar system is now being adopted by the NYSDOT.

***Bridge and Tunnel Operations*** is responsible for operating the 24 City-owned movable bridges that span city waterways. This section operates under a variety of federal mandates that call for 24-hour coverage at many locations; its mission is to provide safe and expedient passage to all marine and vehicular traffic under and on movable bridges. In calendar year 2014, Bridge Operations effected a total of 5,031 openings, 4,389 of which allowed 7,760 vessels to pass beneath the bridges. The remaining 642 openings were for operational and maintenance testing. The section also operates the city's five mechanically-ventilated tunnels, performing electrical maintenance and arranging for roadway cleaning.

The ***Bridge Painting*** section's function is to maintain the protective coating of the City's bridges. The section is divided into two programs, the in-house (expense) program and the capital program. The capital program oversees total paint removal and repainting, performed by contractors; this is done at twelve-year intervals on bridges measuring more than 100,000 square feet of painted area, and bridges over railroads. In-house personnel provide the inspection services on East River Bridge preventive maintenance contracts for quality control purposes. The in-house program is responsible for full steel painting of bridges measuring less than 100,000 square feet, and bridges that are not over railroads. This includes local surface preparation of deteriorated areas and overcoating of the entire bridge. In addition, the in-house program is responsible for salt splash/spot painting.

## ***DIVISION OVERVIEW***

Salt splash/spot painting is performed four years after full steel painting, and again four years later. After another four years, we once again perform full steel painting. The interval between full steel applications remains twelve years.

Members of the in-house program respond to emergency flag repairs alongside the in-house repair forces, to perform surface preparation prior to, and painting upon completion of, the steel work. In-house painting personnel also perform environmental clean-up after the iron workers finish their repair work.

The engineers and inspectors of the ***When and Where Unit*** supervise the contractors' repairs of structural and safety flags citywide under both marine and general repair contracts, as well as a new capital contract. The use of these contracts allows the unit greater flexibility in deploying the contractors' resources as necessary, and in obtaining a variety of construction equipment and materials that are not readily available to in-house forces. In addition, the unit responds to bridge emergencies, providing on-site inspection to verify field conditions, taking measurements for repairs and providing emergency lane closures. The section also supervises the repair work performed during night hours to reduce the impact on traffic and on public safety.

The overall mission of the Bureau of Bridge Maintenance, Inspections and Operations is to maintain the structural integrity of elevated structures and tunnels and to prolong their life by slowing the rate of deterioration. While our objective may be seen as "maintaining the status quo" of the infrastructure, we continue to take a new look at our methods, procedures, and general focus as we formulate our operational plans for the next several years.

As more bridges are rehabilitated, it becomes incumbent upon us to protect the government's investment in the infrastructure by developing and implementing a more ***substantive preventive maintenance program*** to keep these bridges in good condition.

The Deputy Chief Engineer for Bridge Maintenance, Inspections and Operations also acts as the **Deputy Chief Bridge Officer**, assuming the responsibilities of the Chief Bridge Officer in that person's absence.

The **Bureau of Bridge Capital Design & Construction** is made up of four major sections:

The **East River and Movable Bridges Section** is responsible for all design and construction activities for all rehabilitation/reconstruction work that is planned, or currently taking place on the four East River Bridges, as well as all City-owned movable bridges and tunnels. This involves overseeing and supervising design consultants who prepare plans and specifications for bridge rehabilitation/reconstruction projects on the four East River Bridges and all Movable Bridges, as well as overseeing and supervising contractors, Resident Engineers and Inspection Consultants, and Construction Support Services Consultants during the construction phase.

This Section consists of two major areas: ***East River Bridges***, and ***Movable Bridges***. Each of these areas is headed by a Director to whom Section Heads or Engineers-in-Charge report. Each is assigned a specific bridge, or bridges, where they are responsible for all design and construction activities. The Directors, in turn, report to the Deputy Chief Engineer of the Bureau.

The **Roadway Bridges Section** is responsible for both design and construction activities for all rehabilitation/reconstruction work that is planned, or currently taking place on all City-owned, non-movable bridges, with the exception of the four East River Bridges. This involves overseeing and supervising design consultants who prepare plans and specifications for bridge rehabilitation/reconstruction projects, as well as overseeing and supervising contractors, Resident Engineers and Inspection Consultants, and Construction Support Services Consultants during the construction phase.

This Bureau covers two major geographic areas; ***Brooklyn and Manhattan Bridges***, and ***Bronx, Queens and Staten Island Bridges***. In each geographic area, the workload is divided by

Community Board. Engineers-In-Charge report to the Directors of each major area, who, in turn, report to the Deputy Chief Engineer of the Bureau.

**Component Rehabilitation** is the revamping or replacement of damaged, worn or defective bridge components. This type of work is performed primarily on those structures not classified as being “deficient,” but which contain specific components that have low condition ratings. By rehabilitating these components, the Division can ensure that these bridges remain in “good” or “very good” condition; usually extending the bridge’s useful life by up to 10 years. Section Heads or Engineers-in-Charge report to the Director of Component Rehabilitation. Each is assigned a specific bridge, or bridges, for which they are responsible for all component rehabilitation activities. The Component Rehabilitation Program is an ongoing program with cumulative effects. Each Fiscal Year, a number of bridges are selected for inclusion in the program and construction is completed on others. For the ten year period ending fiscal year 2018, the program will obligate approximately \$152.1 million.

The **Design-Build/Emergency Contracts Group** provides technical and procurement expertise related to the following areas: preparing Emergency Declarations for unsafe conditions that require immediate remediation; assisting the Chief Bridge Officer in the contractor selection process for declared emergency situations; providing technical expertise related to the development, procurement and administration of Design-Build contracts throughout the various areas of the Division; preparing and administering Design-Build agreements; and supervision of Design-Build project design, construction, and inspection services.

The **Engineering Review and Support Bureau** is responsible for providing Division-wide engineering support services. The following areas make up this Bureau: ***In-House Design, Engineering Support, Engineering Review, and Quality Assurance***.

***In-House Design*** staff (comprised of the Structural, Electrical, and CADD Groups) prepare plans and specifications for bridge rehabilitation/replacement projects that enable the Division to restore bridges considered “structurally deficient,” to a “very good” condition rating. This unit also handles urgent Division projects, as well as special repair projects of the **Bureau of Bridge Maintenance, Inspections and Operations**. Over the last 20 years, In-House Design has completed contract documents for over 30 major replacement/rehabilitation projects. Some of these projects were in highly environmentally sensitive areas, such as the FDR Drive from 42<sup>nd</sup> to 54<sup>th</sup> Streets, Hylan Boulevard Bridge over Lemon Creek, Chelsea Road Bridge over Sawmill Creek, Cropsey Avenue Bridge over Coney Island Creek, the Exterior Street Ramp, Belt Parkway Bridge over Paerdegat Basin, 145<sup>th</sup> Street Bridge over Harlem River, and the Greenpoint Avenue Bridge over Newtown Creek. The staff also provided plans, working drawings, and shop drawings for in-house built projects such as the temporary Pedestrian Bridge for PS-5, Ferry Terminals at 34<sup>th</sup> Street, the Hamilton Avenue Asphalt Plant conveyor supports, the Yankee Stadium Ferry Access, the concrete barrier at Cross Bay Boulevard, the fencing at Navy Street Pedestrian Bridge, and the bridge railing at Van Name Street Bridge. In-House Design staff also managed and provided guidance in the use of the Bidscope program for various projects in the Division’s capital program.

The Electrical Group reviews and/or prepares contract documents for the electrical and street lighting work for all projects in the Division’s capital program. They further review plans and specifications prepared by consultants and review test results of electrical systems conducted by vendors on the movable bridges.

The ***Engineering Support Section*** is comprised of four units: *Specifications, Survey, Records Management, and Special Projects*.

The *Specifications Unit* prepares and reviews contract bid documents and specifications for all Federal and City-funded, private developer, City-let in-house and consultant-designed bridge and various other construction projects, processes the contracts for bidding, after ensuring that they

## ***DIVISION OVERVIEW***

comply with the City, New York State and Federal standards, prepares, reviews, and transmits addenda, maintains and updates City-let bridge construction boiler plates in compliance with FHWA and NYSDOT Engineering bulletins and instructions, and updates and maintains an inventory of all NYC and NYS special specifications used in bridge and other construction projects. This Unit approves and issues item numbers for newly written special specifications for the city funded projects. In addition, it prepares "Revisions to NYSDOT Standard Specifications" (R-pages), which are compiled from NYSDOT Engineering Bulletins and Engineering Instructions, and reviews contract drawings for compliance with contract bid proposal books.

The *Survey Unit* performs field surveys and visual inspections of bridges and retaining walls, monitorings of cracks and longitudinal and transverse movements in bridge structures as well as foundation settlement. This unit surveys bridge girder alignments and twisted movements in steel girders and floor beams due to damage by oversized trucks or fires. It also prepares and verifies elevations in the field to find existing vertical clearances of bridge structures.

The *Records Management and Electronic Media Unit* establishes drafting guidelines for contract plans and digital media standards for the archiving of bridge records. It reviews design, as-built and shop drawings prepared by consulting firms, as well as CDs and DVDs containing pdf and CAD files. This unit maintains original plan files, upgrades the records database and converts original drawings into electronic media in retrievable formats. It also responds to requests received from private, public and other agencies for information regarding records of City-owned bridges.

The *Special Projects Unit* reviews contract bid documents and specifications for public and private agencies to ensure compliance with City, State and Federal standards and guidelines.

The ***Engineering Review Section*** consists of ten units: *Structural Review, Retaining Wall, Bridge Hold, Cost Estimate, Other Agency/Private Developer, Scope Development, Overweight Truck Permit, Geotechnical, Land Use Planning, and Utilities.*

The *Structural Review Unit* reviews all City-let bridge construction contract drawings, oversees seismic design requirements for City-let contracts for bridge projects, reviews load rating reports and design calculations and ensures that the work to be performed conforms to NYCDOT requirements. This unit establishes design standards, including seismic requirements.

The *Retaining Wall Unit* is responsible for inspecting City-owned retaining walls, identifying walls in poor condition, and creating an inventory of all City-owned retaining walls. Retaining walls in poor condition requiring immediate attention are referred to in-house repair staff or When and Where contractors. Data on poorly rated retaining walls are developed into scope packages and forwarded to the New York City Department of Design and Construction for permanent rehabilitation with DOT funding. Walls of questionable ownership are researched for ownership and jurisdiction. A consultant has been assisting the unit in the inspection, condition assessment, temporary repair design, inventorying and budgeting for the permanent rehabilitation of the retaining walls.

The *Bridge Hold Unit* was established in February 2011, based on OCMC requests to review construction permit applications for any proposed work located within 100 feet of any City-owned bridge structure. The permit applications may also originate from other City agencies, private developers, and utility companies. The Unit reviews the proposed work to ensure that it does not compromise the integrity of the structure and that it is in compliance with Agency requirements. Based on the review's recommendations, the hold will be released or rejected.

The *Cost Estimate Unit* reviews and oversees design and construction cost estimates of City projects.

The *Other Agency/Private Developer Unit* currently provides engineering review supervision of projects from other agencies and private developers such as the Atlantic Yards Project, the Eastside Access Project, the Riverside South Project, the Amtrak Gateway Tunnel project passing under the 11<sup>th</sup> Avenue viaduct, the Empire Outlet Project in Staten Island, the Hudson Park and Boulevard Project, the Hudson Yards Development Corporation Projects (Related)

## ***DIVISION OVERVIEW***

between 10<sup>th</sup> Avenue and 11<sup>th</sup> Avenue and 30<sup>th</sup> Street and 33<sup>rd</sup> Street, and the Extell Temporary Access Road. In addition, the unit conducts non-bridge engineering projects, such as the review of large character balloons for the Macy's Thanksgiving Day Parade, and art work installations proposed for bridge structures.

The *Scope Development Unit* reviews inspection reports, as-built drawings, and structural condition ratings, performs field inspection of bridges to develop the scope of work for the rehabilitation of deficient and poorly rated bridges, and initiates the procurement of Design Consultant contracts. The Unit is also responsible for reviewing of quarterly budgetary plans for bridge rehabilitation projects and coordinates these reviews with the Bureau of Bridge Maintenance, Inspections and Operations, and the Capital Procurement and Capital Planning Sections.

The *Overweight Truck Permit Unit*, in coordination with the Division's Truck Permit Unit, reviews the engineering aspects of overweight and over-dimensional truck and self-propelled crane permit applications, to ensure the safety of City owned bridges. Reviews routes proposed by the truck permit applicants, determines the number of City-owned bridges to be crossed over/under on the route, and determines if the proposed route is acceptable or not, considering the bridges' condition. Recommends alternate routes if needed. Reviews and recommends load posting signs for City owned bridges. The Unit also reviews resurfacing, snow removal and other heavy equipment permit requests from within the Agency and from other agencies.

The *Geotechnical Engineering Unit* provides geotechnical-engineering services. This unit reviews bridge rehabilitation/reconstruction project reports, soil investigation/geotechnical foundation reports, City-let bridge construction contract drawings and other agency/private developers' geotechnical work which impacts City-owned projects.

The *Land Use Planning Unit* reviews and maintains a database of easement issues, right-of-way, and Uniform Land Use Review Procedures. This unit also reviews Design reports and Environmental Impact Statements of various other Agency projects with respect to their impact on City-owned bridges.

The *Utilities Unit* coordinates all issues related to utility design as they affect City-owned bridge projects and related projects.

The **Quality Assurance Section** ensures that materials installed for the Bridge Rehabilitation Program meet contractual requirements and are incorporated in strict compliance with plans and specifications. This section operates under its own formulated Quality Assurance Plan that is based on NYSDOT requirements and procedures. Quality Assurance has contractually retained the services of private inspection/testing firms. The provision of services required for various projects is better coordinated through this centralized method, which is also timely and cost effective.

Off-site Quality Assurance services relative to a wide variety of basic and manufactured construction materials including concrete, asphalt, soils, reinforcing steel, bridge bearings, timber, structural steel and precast/prestressed structural components for all bridge projects, irrespective of the funding source, are handled by this section. Through its engineers at bridge construction sites, Quality Assurance ensures that only acceptable materials are incorporated into rehabilitation/reconstruction work in strict accordance with plans, specifications and acceptable construction practice. Current major projects include the Brooklyn Bridge, Belt Parkway Bridge over Gerritsen Basin, Belt Parkway Bridge over Bay Ridge Avenue, Belt Parkway Bridge over Mill Basin, Protection Against Marine Borers, Ocean Avenue Bridge over NY Atlantic Railroad, City Island Bridge over Eastchester Bay, Bryant Avenue Bridge over Amtrak and CSXT, and the Harlem River Bridge over East 127<sup>th</sup> Street. In addition, the Section provides services to the Component Rehabilitation Section on an as-needed basis.

The Section is currently involved in extending its services for inspection of concrete at batching plants for the Sidewalk and Inspection Management Citywide Concrete Program via its contract with a City-contracted inspection firm.

## ***DIVISION OVERVIEW***

Through its *Environmental Engineering Unit*, Quality Assurance also oversees the implementation of the Final Environmental Impact Statement on bridge construction projects involving the removal and disposal of lead-based paint. The unit's active involvement in training the supervisors and overseeing the abrasive blasting operations has resulted in the successful completion of various paint removal projects. This unit also oversees the proper and safe disposal of other hazardous waste and regulated waste encountered during construction activities.

In addition to enforcing the lead paint removal protocols, the unit manages other environmental concerns. These issues include, but are not limited to, asbestos abatement, soil sampling, groundwater sampling, remediation of contaminated soils and groundwater, worker exposure to environmental contaminants, management of waste oil, storage of hazardous waste, management of storm water runoff, soil erosion controls, management of concrete washout wastewater, site safety, and OSHA compliance. Typically, the unit participates in the design stage to ensure that any environmental issues are addressed during the construction phase of the project. During construction, the unit provides on-site quality assurance oversight and environmental management to ensure compliance with environmental regulations and contract documents. The role of this unit in ensuring public safety has been recognized and commended by the community.

The unit continues to monitor impacts to the City's waterways for numerous projects. This includes dredging and dewatering activities, such as the Belt Parkway Bridges project and the reconstruction of the City Island Bridge. This work often includes dewatering of cofferdams and drill casings, dredge spoil dewatering, and treatment of water for discharge to recharge basins or to surface waters. Potential contaminants such as turbidity, pH, and suspended solids are monitored for compliance with regulatory standards.

The unit is responsible for site-specific discharge monitoring in conjunction with the NYS SPDES Discharge Permits for discharges at the Eastern Boulevard Bridge, Hunters Point Avenue Bridge, Greenpoint Avenue Bridge, Cropsey Avenue Bridge, Manhattan Plaza Underpass, Battery Park Underpass, and the Metropolitan Avenue Bridge. The unit continues to provide environmental oversight and compliance on major capital projects such as Manhattan Bridge, Williamsburg Bridge, Brooklyn Bridge, and Belt Parkway Bridges, as well as Component Rehabilitation, Roadway Bridge, and Design/Build projects such as the reconstruction of the ramps at the St. George Ferry Terminal in Staten Island, Bruckner Expressway over the Bronx River and the Bruckner Expressway Bridges over Conrail/Amtrak.

The unit is currently coordinating mitigation projects such as the Floyd Bennett Field Wetland Mitigation and the Wetland Mitigation at Bergen Beach, which were initiated to compensate for disturbance of wetlands during construction activities such as at the Belt Parkway bridges.

The **Bureau of Management and Support Services** provides essential administrative and analytic services to each of the operational bureaus of the Division of Bridges. The Bureau is divided into five primary sections: ***Office of the Executive Director, Administration and Finance, Capital Procurement, Capital Coordination, and the Truck Permit Unit.*** Each highly-specialized section is designed to address those issues and requirements that are critical to the operation of the respective Bureaus within the Division.

In addition to the Division-wide responsibility for conflict resolution, Equal Employment Opportunity enforcement, confidential investigations, Bridges' litigation claims, 311 Siebel complaints, Bridges' Engineering Service Agreements, space allocation, and special projects, the ***Executive Director*** oversees, on an executive level, the following areas and functions:

The ***Senior Director of the Administration and Finance Section*** oversees and administers all administrative/personnel-related functions for the Division, acting as a liaison with the Central Personnel Coordinator in NYCDOT Personnel including, but not limited to, recruiting for

## ***DIVISION OVERVIEW***

vacancies (this includes reviewing for completeness and submitting the necessary paperwork, and reviewing and distributing candidates' resumes); maintaining all Managerial Position Descriptions; maintaining all Division organization charts; scheduling training; confidential investigations; maintaining records of IFA-funded positions; initiating and assisting in resolving disciplinary/grievance actions; serving as Conflicts of Interest and Financial Disclosure Officer; collecting and reviewing managerial and non-managerial performance evaluations; absence control; providing interpretive advice to Division management regarding City and Agency policy and procedures; and overseeing telephone and facility-related issues for personnel located at 55 Water Street and 59 Maiden Lane in Manhattan.

The Senior Director of the Administration and Finance Section also oversees the following three units:

The *Analytic Unit* prepares comprehensive bi-weekly and monthly reports that address major issues confronting the Division; compiles statistical data detailing the Division's productivity; processes and monitors all FOIL requests; frames issues in which oversight assistance is required for use by the Division, NYCDOT Executive Management and the Mayor's Office; and prepares the City Charter-mandated ***Bridges and Tunnels Annual Condition Report***.

The *Vehicle Coordination Unit* tracks the placement and condition of all vehicles under the jurisdiction of Bridges. It maintains a database and prepares reports containing this information; provides information and reports to appropriate inquiring Divisions and Agencies such as the Auditor General's Office, NYCDOT Legal Department and NYCDOT Litigation Support Services; coordinates the assignments of vehicles and their movement throughout various borough field locations and job sites; prepares reports on Vehicle Status and replacement; prepares reports for the purpose of tracking Overnight Vehicle Assignments for all Division vehicles; receives and routes vehicle Accident Reports, Police Reports and Security Incident Reports relating to vehicle accident, theft and/or vandalism; coordinates priorities for vehicle and equipment repair with Fleet Services; prepares reports and memoranda regarding vehicle safety issues and communication procedures for the NYCDOT Communication Center; and collects required documentation from field personnel for checking Driver Certifications with the Department of Motor Vehicles and EZ Pass.

The *Finance Unit* oversees the Division's entire expense budget process including, but not limited to, base-line preparation, spending plans, overtime control, financial plan changes, and budget modifications. The unit further oversees all Division-wide fiscal activities, including the establishment and monitoring of all IFA-related project budgets, while simultaneously ensuring that the budget and plans represent the Division's priorities.

The ***Capital Procurement Section*** serves as a liaison between the Division of Bridges and the Office of the Agency Chief Contracting Officer, other Agency Divisions, the public and private railroads, and the various consulting firms involved with the procurement process. The duties of this unit include: overseeing the Division's capital consultant contract procurement from scope to registration; preparing status reports; processing of the Division's change orders through registration, and coordinating Railroad Force Account Agreements and railroad invoice payments for Division construction projects.

*Railroad Force Account Agreements* are a vital component in the rehabilitation/reconstruction program since train traffic affects 327 (41.4%) of City-owned bridges. Careful cooperation between the NYCDOT and the various railroad agencies that service the metropolitan area is required. The Railroad Coordinator provides a single point of contact for all railroad issues. This coordination includes the use of railroad personnel for track safety, approval of reconstruction design drawings, track shutdowns and reductions in train service for bridge construction work. The coordinator informs managers of "typical" railroad problems and attempts to avoid them through proactive measures. Upon registration of the railroad force account contracts between the City of New York and the respective railroad, Notices to Proceed [NTPs] are issued, and invoices are generated. The invoices, once approved by the engineers for the railroad and the



corresponding DOT Project Manager, are sent to the Railroad Coordinator for processing and actual payment by the New York City Comptroller's Office.

NYCDOT bridge designers make every effort to prepare accurate and complete contract documents. Unfortunately, in many instances, the original design drawings for the deteriorating bridges no longer exist, and previous records of modifications and repairs are not available. When the contract documents for the bridge reconstruction projects do not accurately address conditions found in the field, Contract Change Requests (CCR) are needed. Change order work can not proceed until the CCR is registered. Due to the nature of bridge construction projects, change order work is often on the critical path. Any delay in the issuance of a change order affects the overall project, and adds substantial overruns to the final cost. A tracking process for change orders has been implemented that significantly reduces the time for the approval process.

Certificates to Proceed [CPs] are a critical component for the registration of any Construction, Consultant Programs, Force Account, Change Order and Engineering Service Agreement and assigned ESA tasks. Coordinating the submission of New and Revised Certificates to Proceed for submission to the Capital Budget is overseen by the Capital Procurement Unit.

The **Capital Coordination Section** is responsible for preparing, coordinating and updating the capital budget and capital program initiative within the Division of Bridges. Currently, the Division's Ten Year Capital Plan is worth approximately \$4.5 billion. This plan is designed to rehabilitate the City's bridges. Responsibilities include: administering and participating in the development and implementation of planning capital projects; acting as liaison with oversight agencies, DOT Administration and all responsibility centers within Bridges; reviewing and processing transfer of fund requests in an attempt to resolve funding issues; and maintaining the Division's registration report for all current year capital contracts. In addition, this section coordinates the Division's submission of Initial Financial Plans, Annual Financial Plan and Construction Management Plans prepared by Project Managers that must be submitted to the Office of Finance, Contracts & Program Management.

The **Truck Permit Section** issues approximately 1000 Annual Overweight Load Permits (mostly renewals), and approximately 40,350 other permits, including Annual Self-Propelled Crane Permits, Daily Oversize/Overdimensional/Supersize Truck Permits, and Bulk Milk Permits; all in accordance with the New York City Department of Transportation Policy and Procedures and the New York City Traffic Rules and Regulations section 4-15.



In March 2014, Seven Large Sculptures ("Park Avenue Paper Chase") by Alice Aycock, in Aluminum and Fiberglass, Were Installed Along Park Avenue From 52<sup>nd</sup> Street to 66<sup>th</sup> Street - This is a Piece of One of the Sculptures on a Trailer. One of the Sculptures on Park Avenue. (Park Avenue Credit: Eugene D. Parker). Consolidated Edison Transformer Delivered Avenue A.

## ***DIVISION OVERVIEW***



June 2014: The McDonald's Fiesta Tour is a 53-Foot Long Traveling Mobile Unit That Pays Tribute to Latin Grammy Winners Through a Series of Interactive Engagement Areas. Consolidated Edison Transformer Delivered to the East 13<sup>th</sup> Street Substation. November 2014: 53 Foot Long Soldier's Wish Truck was Part of the Veteran's Day Parade. Soldier's Wish is a Non-Profit Organization That Grants Wishes to Active Duty Military and Veterans.

**JANUARY**

**Anti-Icing**

On January 2, 2014, 3.1 inches of snow fell in Central Park, a record 3.4 inches at La Guardia Airport, and a record 2.4 inches at JFK Airport. On January 3, 2014, 3.3 inches of snow fell in Central Park, a record 4.5 inches at La Guardia Airport, and a record 4.5 inches at JFK Airport. Anti-icing crews were deployed on the East River bridges from 12:30 AM on January 2 until 4:00 AM on January 4; 11,200 gallons of liquid chemical and 41 tons of solid were applied. Crews were again deployed on January 10 from 6:00 AM until 10:30 AM; 300 gallons of liquid chemical were applied. Priority overpasses were cleared and icicle patrols were active on the FDR Drive, Battery Park Underpass, and the Brooklyn-Queens and Cross Bronx Expressways.



Removing Snow on the Brooklyn and Manhattan Bridges on January 3, 2014.

**East Tremont Avenue Bridge over Hutchinson River Parkway, 236<sup>th</sup> Street Pedestrian Bridge over Henry Hudson Parkway, Henry Hudson Parkway Bridge over Broadway, Grand Concourse Bridge over Burnside Avenue, and Grand Concourse Bridge over East 204<sup>th</sup> Street (Bronx)**

A Notice to Proceed for the painting of these bridges was issued to the contractor with a start date of January 13, 2014.



East Tremont Avenue Bridge over Hutchinson River Parkway, 236<sup>th</sup> Street Pedestrian Bridge over Henry Hudson Parkway, Henry Hudson Parkway Bridge over Broadway, Grand Concourse Bridge over Burnside Avenue, and Grand Concourse Bridge over East 204<sup>th</sup> Street.

**Anti-Icing**

On January 21, 2014, a record 11 inches of snow fell in Central Park, and a record 6.8 inches at JFK Airport. On January 22, 0.5 inches of snow fell in Central Park and 0.3 inches at JFK Airport. On January 25, 1 inch of snow fell in Central Park, 0.2 inches at La Guardia Airport, and 0.8 at JFK Airport. On January 26, 0.1 inches of snow fell at La Guardia Airport. On January 29, 0.8 inches of snow fell in Central Park, 0.3 inches at La Guardia Airport, and a record 1 inch at JFK

Airport. Anti-icing crews were deployed on the East River bridges from 9:00 AM on January 21 until 6:00 AM on January 22; 15,600 gallons of liquid chemical and 34 tons of solid chemical were applied. Crews were deployed again from 8:00 AM on January 25 until 5:00 AM on January 26; 4,000 gallons of liquid chemical were applied. Anti-icing crews worked again on the East River Bridges from 9:00 PM on January 28 until 7:00 AM on January 29; 5,550 gallons of liquid chemical were applied. Priority overpasses were cleared and icicle patrols were active on the FDR Drive, Cross Bronx and Brooklyn-Queens Expressways, and the Battery Park Underpass.



Below the Fresh Creek Bridge on January 21, 2014. Contractor Laborers Using Shovels to Remove Snow on the Pedestrian/Bicycle Path at the Gerritsen Inlet Bridge. The Path is too Narrow to Accommodate the use of Heavy Equipment. Hundreds of Ducks Gathered Near the Turbidity Curtain at the Gerritsen Inlet Bridge Project on January 29, 2014.

***Kosciuszko Bridge over Newtown Creek (Brooklyn/Queens)***

On January 28, 2014, Division ironworkers performed emergency repairs at the base of this State-owned bridge to make it safe. Permanent repairs were later made by State personnel.



Ironworkers Setting a Steel Plate on Top of a Through-Hole on the Brooklyn-Queens Expressway. (Credit: Clara Medina)

***Belt Parkway Bridge over Gerritsen Inlet (Brooklyn)***

In January 2014, the contractor continued the installation of forms and spiral rebar at both abutments.



January 2014: Rebar Cages for Cast-in-Place Piles Temporarily Stored on the North Side of the Gerritsen Bridge. Northeast Abutment Wall Formwork and Rebars. Turbidity Curtain in Place at Work Site. Existing Bridge at Right.

**FEBRUARY****Anti-Icing**

On February 3, 2014, a record 8 inches of snow fell in Central Park, a record 7.7 inches at La Guardia Airport, and a record 6.7 inches at JFK Airport. On February 5, 4 inches of snow fell in Central Park, 3.3 inches at La Guardia Airport, and 2.2 inches at JFK Airport. On February 9, 1.2 inches of snow fell in Central Park, and 1.2 inches at La Guardia Airport. Anti-icing crews were deployed on the East River bridges from 11:00 AM on February 2 until 7:00 PM on February 3; 7,100 gallons of liquid chemical and 6 tons of solid chemical were applied. Crews were deployed again from 9:30 PM on February 4 until noon the following day; 11,700 gallons of liquid chemical and 21 tons of solid were applied. Anti-icing crews worked again on the East River Bridges from 1:00 PM on February 9 until 6:00 AM the following day; 5,700 gallons of liquid chemical and 1 ton of solid were applied. Snow was cleared from priority overpasses, and icicle patrols were active on the FDR Drive, Battery Park Underpass, and the Cross-Bronx and Brooklyn-Queens Expressways. Hundreds of potholes were filled on the Unionport, Mill Basin, Gerritsen Inlet, Broadway, Ed Koch - Queensboro, Hamilton Avenue, and Manhattan Bridges, and on sections of the Brooklyn-Queens Expressway and Harlem River Drive.



February 3, 2014: Cement Mason Luigi Mula Operating Snow Clearing Equipment on the Williamsburg Bridge. Bridge Operator Shoveling Snow on the Greenpoint Avenue Bridge. (Credit: Paul Schwartz)

**Hamilton Avenue Asphalt Plant (Brooklyn) and Harper Street Asphalt Plant (Queens)**

On February 8, 2014, Division ironworkers repaired the catwalk, crusher, and scrap bins.

**Anti-Icing**

On February 13, 2014, 9.5 inches of snow fell in Central Park, a record 7.7 inches at La Guardia Airport, and a record 5.5 inches at JFK Airport. On February 14, 3 inches of snow fell in Central Park, a record 3.2 inches at La Guardia Airport, and 1.4 inches at JFK Airport. On February 15, 1.6 inches of snow fell in Central Park, 3 inches at La Guardia Airport, and 1.6 inches at JFK Airport. On February 18, 1.5 inches of snow fell in Central Park, 1.5 inches at La Guardia Airport, and 1.6 inches at JFK Airport. Anti-icing crews were deployed on the East River bridges from 12:00 AM on February 13 until 7:00 AM on February 14; 13,650 gallons of liquid chemical and 23 tons of solid chemical were applied. Crews were deployed again from 6:00 AM on February 15 until 2:00 AM the following morning; 2,300 gallons of liquid chemical were applied. Anti-icing crews worked again on the East River Bridges from 2:00 AM to 10:30 AM on February 18; 3,000 gallons of liquid chemical and 2 tons of solid were applied. Snow was cleared from priority overpasses, and icicle patrols were active on the Battery Park Underpass, and the Cross-Bronx and Brooklyn-Queens Expressways. Hundreds of potholes were filled on the Unionport, Mill Basin, Ed Koch - Queensboro, Roosevelt Avenue, Williamsburg, Third Avenue, Madison Avenue, 181<sup>st</sup> Street, and Manhattan Bridges, and on sections of the Brooklyn-Queens Expressway and the Harlem River Drive.



February 13, 2014: Brooklyn, Manhattan, and Williamsburg Bridges. Loading Solid Chemical for Spot Applications on the Williamsburg Bridge Walkway/Bicycle Path. February 14: Sanding at East 153<sup>rd</sup> Street and Grand Concourse. (Credit: Paul Schwartz)

***Henry D. Perahia***

On February 21, 2014, friends, family, and associates gathered to recognize and celebrate the 30-plus years of public service retired Chief Bridge Officer Henry D. Perahia gave to the people of the City of New York.



Commissioner Polly Trottenberg, Retired Chief Bridge Officer Henry D. Perahia, and Former Commissioner Janette Sadik-Khan. Former First Deputy Commissioner Sam Schwartz, Henry D. Perahia, and Naomi Perahia. Former Commissioner Lucius J. Riccio and Henry D. Perahia. First Deputy Commissioner Lori A. Ardito and Henry D. Perahia. Former Traffic Deputy Commissioner Dr. Michael Horodniceanu and Henry D. Perahia.

***Hamilton Avenue Asphalt Plant (Brooklyn) and Harper Street Asphalt Plant (Queens)***

On February 15 and 22, 2014, Division ironworkers repaired the cold-feed bin and drier drum, and began installation of pipe supports and catwalks.

***Belt Parkway Bridge over Gerritsen Inlet (Brooklyn)***

In February 2014, the contractor dewatered the Pier #1 cofferdam and made pothole repairs.



Workers Preparing to Dewater Cofferdam at Pier No. 1. . Steel Wheel Roller Compacting Hot Mix Asphalt During Nighttime Operation on Eastbound Belt Parkway West Side.

**MARCH**

***Award***

In March 2014, the American Council of Engineering Companies of New York selected the St. George Ferry Terminal Ramps Rehabilitation for a Gold Award in the structural systems category in its 2014 Engineering Excellence Awards. The Belt Parkway Bridge over Fresh Creek Basin reconstruction and the St. George Ferry Terminal Ramps Rehabilitation projects were selected for Platinum Awards in the transportation category, and the Bruckner Expressway Bridges over Amtrak project received a Gold Award in this category.

***Anti-icing***

On March 3, 2014, 0.1 inches of snow fell in Central Park, 0.4 inches at La Guardia Airport, and 0.6 inches at JFK Airport. Anti-icing crews were deployed on the East River bridges from 11:00 PM. on March 2 until 7:00 the following morning; 3,500 gallons of liquid chemical and no tons of solid were applied. Snow was cleared from priority overpasses, and icicle patrols were active on the FDR Drive, Battery Park Underpass, and the Cross-Bronx and Brooklyn-Queens Expressways. Hundreds of potholes were filled on the Mill Basin, Ed Koch - Queensboro, Roosevelt Avenue, Third Avenue, Madison Avenue, 145<sup>th</sup> Street, Gerritsen Inlet, Union Street, Metropolitan Avenue, Hamilton Avenue, 181<sup>st</sup> Street, and Manhattan Bridges.



Huge Icicle (Caused by a Broken Water Pipe) Between the South Outer Roadway and the Inner Roadway at the Queens Approach of the Ed Koch – Queensboro Bridge. Icing on the South Outer Roadway. Division Engineers Closed Parts of the Roadway Until NYCTA Crews Completed the Removal of the Icicle and All of the Ice From the Roadway Surface and Barrier. Salt was Placed on the Remaining Ice on the Roadway. (Credit: Artemio Angeles)

***Hamilton Avenue Asphalt Plant (Brooklyn) and Harper Street Asphalt Plant (Queens)***

On March 1 and 8, 2014, Division ironworkers repaired the mixing unit, and continued installation of pipe supports and catwalks.

***Hamilton Avenue Asphalt Plant (Brooklyn) and Harper Street Asphalt Plant (Queens)***

On March 15 and 22, 2014, Division ironworkers repaired the conveyor belt and silo, and continued installation of pipe supports and catwalks.

**Anti-Icing**

Anti-icing crews were deployed on the East River bridges from 11:00 PM on March 16 until 6:30 the following morning; no applications of chemicals were necessary. Crews were again deployed from 5:00 PM on March 25 until 4:30 the following morning; no applications of chemicals were necessary. Icicle patrols were active on the FDR Drive, Battery Park Underpass, and the Cross-Bronx and Brooklyn-Queens Expressways.

**Water Street Arch**

The Agency's Urban Art Program enhances public space through art and improved street design and streetscapes. Launched in October 2008, the program brings the vision of the Agency's World Class Streets initiative to life by partnering with community organizations to install murals, sculptures and other art forms in plazas and on medians, triangles, sidewalks, Jersey barriers and construction fences for up to 11 months on NYCDOT properties.

Brooklyn-based design studio Young Projects' "Match-Maker," in partnership with the DUMBO Improvement District, cosmically connected people through zodiac signs at twelve viewing points around the heart shaped sculpture. Peering through the colorful intertwined periscopes provided glimpses of each viewer's four most ideal astrological mates. The form of the sculpture was complex, symmetrical and changed as viewers experienced it from different vantage points. From many angles, the installation looked like a perfect heart form, but from other perspectives, the sculpture was tangled and multifaceted. The art was exhibited for two months beginning in March 2014.



"Match-Maker" Exhibit in the Water Street Arch.

**Edward Alfano**

Supervisor Bricklayer Edward Alfano was the subject of the "Staff Spotlight" feature in the March 2014 edition of "Byways," the official Agency newsletter.



Supervisor Bricklayer Edward Alfano, Preparing to Lead Crews Responsible for Snow Removal on the East River Bridges.

**Belt Parkway Bridge over Gerritsen Inlet (Brooklyn)**

In March 2014, the contractor continued installation of forms and rebar at both east and west abutments.





Galvanized Steel Pier Reinforcement Cages, set on Pier Footing Within the Cofferdam. Abutment Wingwall Reinforcement Steel, Prior to Setting Wall Forms on Previously Placed Wall Footing at Northeast Corner of the Abutment. 3/18/14 Wingwall Forms at North-West Abutment Wingwall. The existing bridge is at right.

## APRIL

### **Hamilton Avenue Asphalt Plant (Brooklyn) and Harper Street Asphalt Plant (Queens)**

On March 29 and April 5, 2014, Division ironworkers repaired the mixer drum, bins, and chutes, and continued installation of pipe supports and catwalks.

### **Brooklyn Bridge**

As part of the contract to rehabilitate the Brooklyn Bridge ramps and approaches, a full closure of the Manhattan-bound lanes of the bridge was performed from 11:59 PM April 4 to 6:00 AM April 7. Among other operations, this full weekend closure enabled the contractor to complete demolition and install a temporary deck unit on the Manhattan-bound roadway of the York Street structure in Brooklyn.



April 2014: Saw Cutting of the York Street Deck.

### **Police Officer Dennis Guerra Tribute**

The American flags on the Brooklyn Bridge were lowered to half-mast by Division painters on April 9, 2014, in tribute to Police Officer Dennis Guerra of Housing Bureau Precinct PSA-1, who died in the line of duty on Wednesday, April 9, 2014. He knew there was a fire in a Coney Island public housing development on the 13<sup>th</sup> floor. He and his partner inhaled a toxic mix of smoke and carbon monoxide responding to that fire on April 6. He began serving in the NYPD as a school safety officer and worked his way up to being a corrections officer and ultimately a housing officer. Officer Guerra, 38, an eight year veteran of the department, was the first officer to die in the line of duty since the December 12, 2011, shooting of Officer Peter Figoski. The flags were raised on April 15, 2014.



Officer Dennis Guerra.

### **Hamilton Avenue Asphalt Plant (Brooklyn) and Harper Street Asphalt Plant (Queens)**

On April 12 and 19, 2014, Division ironworkers repaired the dryer drum, mixer drum, and silo, and constructed storage units.

### **Anti-Icing**

Anti-icing crews were deployed on the East River bridges from midnight to 7:30 AM on April 16; 700 gallons of liquid chemical and 1.5 tons of solid were applied.

**Beatriz Duran**

Interim Director for Design-Build and Emergency Contracts Beatriz Duran was the subject of the “Staff Spotlight” feature in the April 2014 edition of “Byways,” the official Agency newsletter.



Interim Director for Design-Build and Emergency Contracts Beatriz Duran.

**Belt Parkway Bridge over Bay Ridge Avenue (Brooklyn)**

In April 2014, the contractor completed demolition of center median and removal of the structural deck concrete and asphalt wearing courses during Stage I.



April 2014: Laborers Removing the Bridge Deck to Facilitate Removal of the Existing Concrete Median Barrier at Right Side of Trench During Stage I MPT. Stage I MPT Work Area After Removal of Structural Deck Concrete and Asphalt Wearing Courses, Exposing Deck Rebars and Structural Beams. Workers Cleaning out Catch Basins Using a High Pressure Water Hose and Vacuum Pipe for Debris Removal.

**MAY**

**37<sup>th</sup> Annual Five Borough Bike Tour**

In preparation for the 42-mile Five Borough Bike Tour on May 4, 2014, Division personnel swept the Ed Koch – Queensboro, Pulaski, Madison Avenue, and Third Avenue Bridges along the route and patrolled them for potholes. Carpenters installed temporary plywood covers over the finger joints of the Pulaski Bridge, which were removed after the tour concluded that day.

**Hamilton Avenue Asphalt Plant (Brooklyn) and Harper Street Asphalt Plant (Queens)**

On April 26 and May 3, 2014, Division ironworkers repaired the mixer drum, shaker, crusher, and silo.

### ***Peace Officers Memorial Day Tribute***

The Brooklyn Bridge American flags flew at half-mast on May 15, 2014, to commemorate Peace Officers Memorial Day.

### ***Hamilton Avenue Asphalt Plant (Brooklyn) and Harper Street Asphalt Plant (Queens)***

On May 10 and 17, 2014, Division ironworkers repaired the hopper, crusher, and elevator.

### ***Hamilton Avenue Asphalt Plant (Brooklyn) and Harper Street Asphalt Plant (Queens)***

On May 24, 2014, Division ironworkers repaired the staircase and storage units, and masons constructed a new concrete wall.

### ***Memorial Day Tribute***

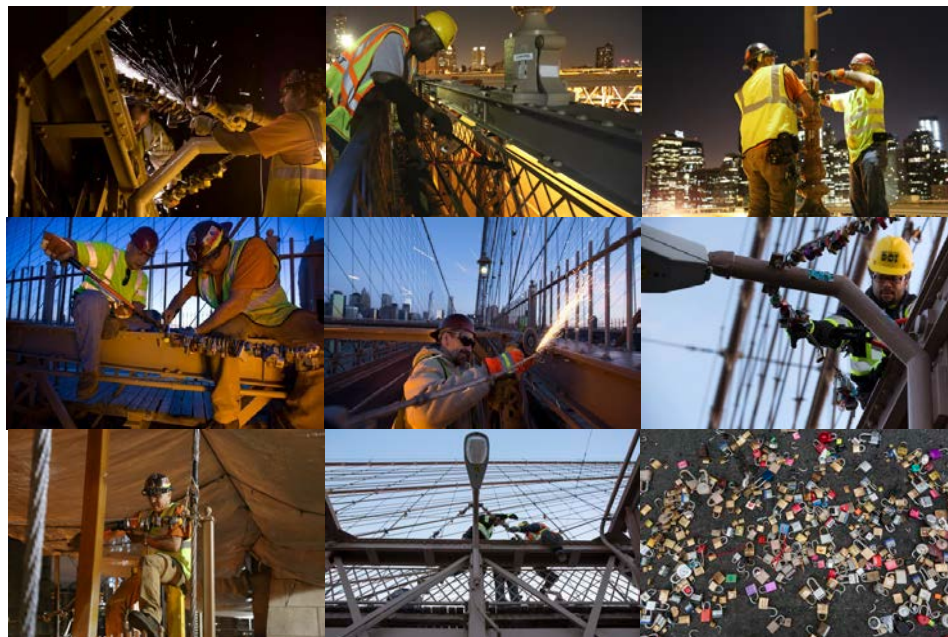
The Brooklyn Bridge American flags flew at half-mast until noon on May 26, 2014, to commemorate those who died serving the nation during war.

### ***West 176<sup>th</sup> Street Pedestrian Bridge over Approach to George Washington Bridge (Manhattan)***

Cleaning and painting of the bridge, which began on October 23, 2013, was completed on May 28, 2014.

### ***Brooklyn Bridge***

Over the Memorial Day weekend, Division staff removed over 4,000 “love locks” from the bridge. The number of locks on the Brooklyn Bridge significantly increases expenses and diverts crews that would otherwise be assigned to other maintenance operations. The locks also potentially pose a safety risk for workers or motorists on the lower deck and periodic maintenance efforts that also occasionally require the temporary closure of traffic lanes.



Removing the “Love Locks” From the Brooklyn Bridge. (Credit: Stephen Mallon)

### ***82<sup>nd</sup> Avenue Bridge over LIRR Main Line (Queens)***

John Chadwell’s “Eastbound, Westbound,” part of the Agency’s Urban Art Program, was a mural along the 82<sup>nd</sup> Avenue Bridge at Grenfell and Austin Streets in Kew Gardens. The eastbound side of the mural was a scenic view of the Montauk/Orient Point Long Island shoreline while the westbound side of the mural depicted the Manhattan skyline. The project aimed to beautify, activate and enliven a pedestrian walkway. The exhibit opened in May 2014.



“Eastbound, Westbound” Exhibit on the 82<sup>nd</sup> Avenue Bridge.

**Ed Koch – Queensboro Bridge**

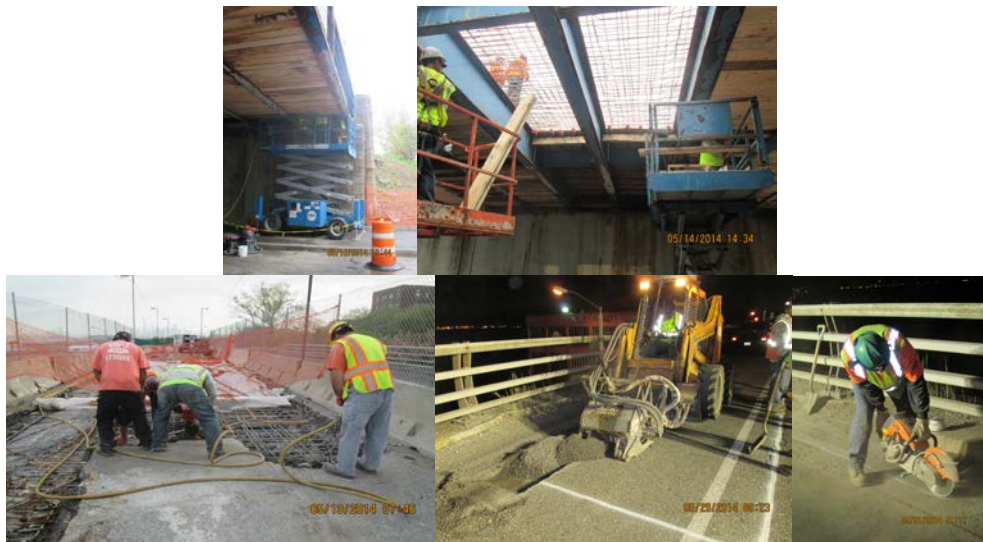
New York-based design firm Pure+Applied’s “Guastavino Tile Pattern # 8,” part of the Agency’s Urban Art Program, and in partnership with New York Cares and the Midtown Community Court System, was installed along the barriers underneath the Ed Koch - Queensboro Bridge at 1<sup>st</sup> Avenue between 59<sup>th</sup> and 58<sup>th</sup> Streets. The herringbone pattern of the design was based on the Guastavino & Sons signature vaulted design from the Queensboro Bridge’s Bridge market which was built in 1909. The pattern was also incorporated in numerous landmarks throughout midtown such as, Grand Central Terminal’s Oyster Bar and St. Bartholomew’s Church. The blue color within the barrier design was inspired by the flower tiles located on the side of the bridge. The artwork, installed in May 2014, aimed to enliven the bike/pedestrian pathway and the vehicular experience underneath the bridge.



Applying the Artwork to the Barriers.

**Belt Parkway Bridge over Bay Ridge Avenue (Brooklyn)**

In May 2014, the contractor demolished more of the superstructure deck.



May 2014: Installing Wood Under Deck Shielding to Prevent Debris from Falling Onto the Sidewalk and Roadway at Southwest Abutment During Deck Demolition. Demolishing Bridge Deck With Pavement Breakers on Westbound Roadway. Temporary Deck Repair of Eastbound Roadway.

***Belt Parkway Bridge over Gerritsen Inlet (Brooklyn)***

In May 2014, the contractor completed installation of concrete at the Pier 1 plinth.



Pier 1 Plinth and Footing Inside the Cofferdam in May 2014. Commissioner Polly Trottenberg (in Red Jacket) and Chief Bridge Officer Robert O. Collyer Inspecting the Gerritsen Inlet Bridge Project in May 2014.  
(Credit: Moshin Rizvi)

**JUNE**

***Award***

In June 2014, in recognition of his outstanding contributions to the status of the civil engineering profession, Chief Bridge Officer Robert O. Collyer was presented the Herbert Howard Government Civil Engineer of the Year award by the Metropolitan Section of the American Society of Civil Engineers.



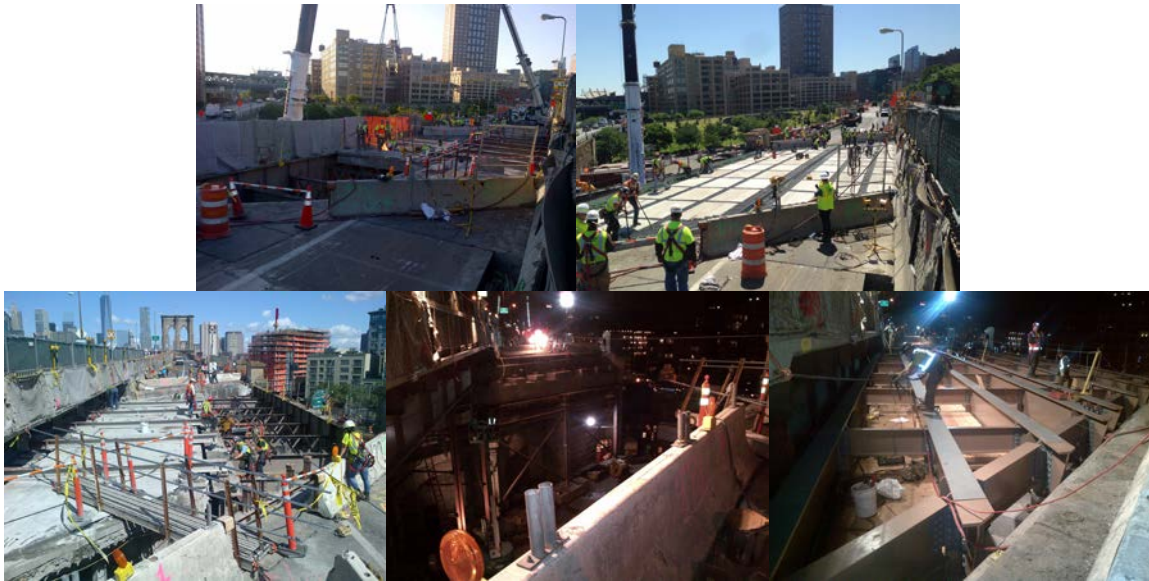
Civil Engineer Jagtar Khinda and Chief Bridge Officer Robert O. Collyer.

***Award***

The 2014 Prize Bridge Awards Competition is conducted by the National Steel Bridge Alliance. The program honors outstanding and innovative steel bridges constructed in the U.S. The Willis Avenue Bridge won the 2014 Prize Bridge Award in the Moveable Span category, and also won a commendation for accelerated bridge construction in the Moveable Span category. The awards were described in the June 2014 issue of Modern Steel Construction.

**Brooklyn Bridge**

As part of the contract to rehabilitate the Brooklyn Bridge ramps and approaches, a full closure of the Manhattan-bound lanes of the bridge was in place from 11:59 PM May 30 to 6:00 AM June 2. Existing concrete deck sections of the Main Street structure were removed; painting of railings and main bridge overhead struts progressed, as did excavation for Manhattan approach precast slabs; new steel stringers were set; and the new grid panels were placed.



May 2014: Demolition of Main Street Structure. All Steel Removed. Installation of New Steel.

**Union Turnpike Bridge over Jackie Robinson Parkway, Queens Boulevard Bridge over Jackie Robinson Parkway, Woodside Avenue Bridge over Brooklyn-Queens Expressway, Bulova Avenue Bridge over Brooklyn-Queens Expressway West Leg, Woodhaven Boulevard Bridge over Atlantic Avenue, Myrtle Avenue Bridge over Jackie Robinson Parkway, 49<sup>th</sup> Street Bridge over Brooklyn-Queens Expressway West Leg, and 69<sup>th</sup> Street Bridge over Brooklyn-Queens Expressway (Queens)**

A Notice to Proceed for the painting of these bridges was issued to the contractor with a start date of June 2, 2014.





Union Turnpike Bridge over Jackie Robinson Parkway, Queens Boulevard Bridge over Jackie Robinson Parkway, Woodside Avenue Bridge over Brooklyn-Queens Expressway, Bulova Avenue Bridge over Brooklyn-Queens Expressway West Leg, Woodhaven Boulevard Bridge over Atlantic Avenue, Myrtle Avenue Bridge over Jackie Robinson Parkway, 49<sup>th</sup> Street Bridge over Brooklyn-Queens Expressway West Leg, and 69<sup>th</sup> Street Bridge over Brooklyn-Queens Expressway.

### ***Brooklyn Bridge***

The Brooklyn Bridge flags flew at half-mast on June 6, 2014, D-Day National Remembrance Day, to observe the 70<sup>th</sup> anniversary of the Allied Forces landing on the beaches of Normandy.

### ***Labor-Management Employee Recognition Award Ceremony***

Division personnel were honored on June 6, 2014 for their years of service to the City.

#### 40 Years of Service

Associate Staff Analyst Norine Enrione.

#### 35 Years of Service

Associate Staff Analyst Barbara Pedersen.

#### 30 Years of Service

Supervisor Bridge Operator Tony Allen, Administrative Staff Analyst Victoria Bailey, Supervisor Bridge Operator William Bizaldi, Principal Administrative Associate Valerie Butler, Electrician Thomas Cipriano, Carpenter Thomas Gilmore, Supervisor Highway Repairer Anthony Gnerre, Supervisor Highway Repairer Salvatore Mazzatenda, Oiler Thomas McAuliffe, and Administrative Staff Analyst Michael Tohl.

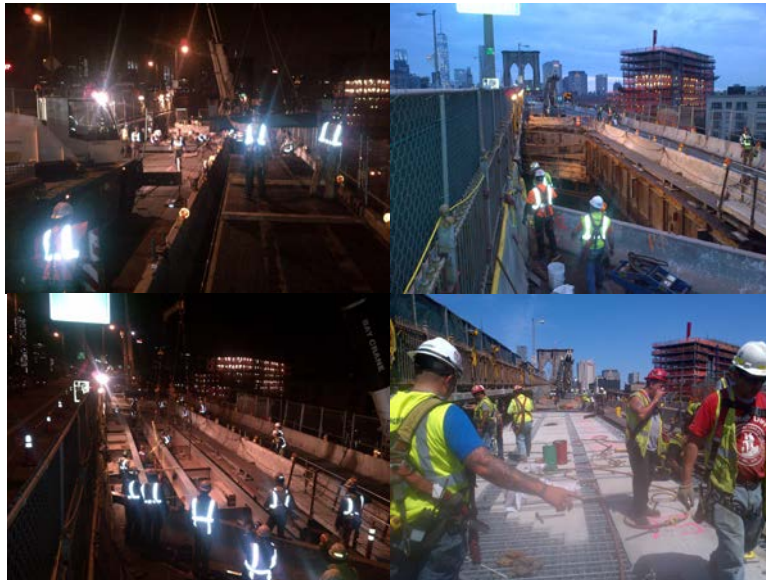
#### 25 Years of Service

Administrative Engineer Muhammad Afzal, Civil Engineer Ricardo Andino, Supervisor Bridge Painter Robert Avellino, Supervisor Electrician Paul Betts, Highway Repairer Andrew Bondi, Bridge Operator Desmond Brown, Bridge Repairer and Riveter Brook Budd, Oiler Paul Califano, Cement Mason Warren Chiles, Bridge Repairer and Riveter Kevin Clarkson, Bridge Repairer and Riveter Patrick Clowe, Bridge Repairer and Riveter Gregory Connors, Highway Repairer Thomas Cruz, Civil Engineer Jose Cubelo, Associate Staff Analyst Darlene Davis-Jones, Bridge Repairer and Riveter Fabian Del-Tongier, Bridge Repairer and Riveter Frederick Doyle, Assistant Electrical Engineer Raynold Fabre-Jeune, Bricklayer Louis Giarratano, Civil Engineer Ezatollah Govhari, Supervisor Electrician Gene Greve, Assistant Mechanical Engineer Nancy Guernsey, Supervisor Electrician Raymond Hanley, Supervisor Bridge Repairer and Riveter Steve Havemann, Administrative Engineer Daniel Hom, Supervisor Bridge Repairer and Riveter John Jones, Civil Engineer Jerry Shaoku Kao, Administrative Engineer Nazim Khan, Deputy Chief Engineer George Klein, Administrative Engineer Frank Kodah, Assistant Civil Engineer Syed Mahmood, Bridge Repairer and Riveter John Mohabir, Supervisor Bridge Operator Antonio Morales, Secretary Geraldine Morinia, Construction Project Manager Ali Mozaffari, Administrative Engineer Mousa Nazif, Administrative Staff Analyst Arthur Onuora, Supervisor Bridge Operator Nestor Ortiz, Supervisor Bridge Painter Albert Pappas, Administrative Engineer Pinakin Patel, Supervisor Bridge Painter Cesar Pazmino, Bridge Painter Julio Perez, Bridge Repairer and Riveter Michael Santo, Carpenter Michael Short III, Administrative Engineer Samuel Teaw, Supervisor Carpenter Joseph Vaccaro, Administrative Staff Analyst Michele Vulcan, Oiler Carl Wharton, Administrative Superintendent Highway Operations Thomas Whitehouse, and Bridge Painter Vlatko Zic.



**Brooklyn Bridge**

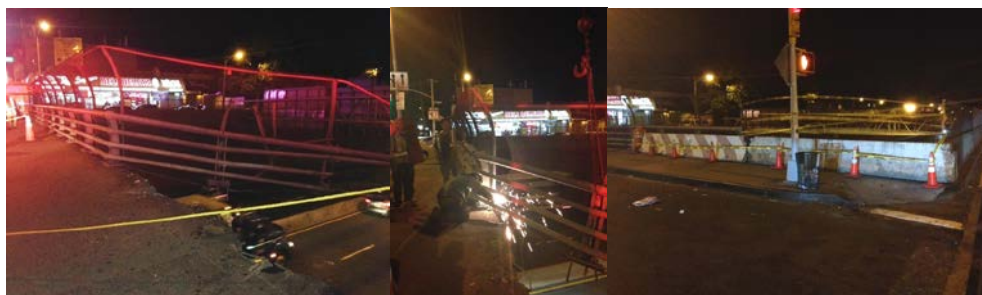
As part of the contract to rehabilitate the Brooklyn Bridge ramps and approaches, a full closure of the Manhattan-bound lanes of the bridge was in place from 11:59 PM June 13 to 6:00 AM June 16. This facilitated the rehabilitation of the Brooklyn Bridge's Main Street bridge structure in Brooklyn. Additional work included abrasive blasting and priming of Ramp A Span 4, painting of Ramp I, power-tool cleaning and painting of top struts and 2-rail safety barrier at the Brooklyn Side span, Brooklyn main and Manhattan main spans, north cantilever demolition in Manhattan and SuperSlab installation at the Brooklyn and Manhattan Approaches.



June 2014: Removing the Temporary Deck of the York Street Structure. One Half of Bridge Removed. Installing New Steel Beams. Installing Prefabricated Deck.

**East Tremont Avenue Bridge over Bruckner Expressway (Bronx)**

On June 21, 2014, Division ironworkers performed emergency repairs on this State-owned bridge to make it safe. A vehicle travelling west had crashed through the guard rail. An approximately 25 foot long section of bridge steel railing was bent outward at an almost 90 degree angle, and was hanging over the northbound Bruckner Expressway. Damaged parts of the rail were removed, and two Jersey barriers were placed at the site. Permanent repairs were later made by State personnel.



The Bent Steel Bridge Railing at the Southeast Corner of the East Tremont Avenue Overpass. Ironworkers Removing the Damaged Steel. Concrete Barriers and Cones Secured the Area. (Credit: Artemio Angeles)

**Hamilton Avenue Asphalt Plant (Brooklyn) and Harper Street Asphalt Plant (Queens)**

On June 21 and 28, 2014, Division ironworkers repaired the mixing basin, conveyor belt, and fans. Crews built a steel wall at the Brooklyn plant as a barrier between the plant and a Department of Sanitation facility.

**Sanitation Worker Steven Frosch Tribute**

The American flags on the Brooklyn Bridge were lowered to half-mast by Division painters on June 22, 2014, in tribute to Sanitation Worker Steven Frosch, 43, a 14 year veteran of the Department, who died in the line of duty on June 21, 2014. He was struck and pinned by a mechanical broom while repairing his street cleaner at the Queens West 5A Broom Garage in Maspeth. He was the 17<sup>th</sup> sanitation worker to die in the line of duty since 2000, and the Department's first line-of-duty fatality since 2011. Mr. Frosch was previously an NYPD officer for five years. The flags were raised on June 28, 2014. To honor Mr. Frosch for his dedication to the Department, his work garage was named after him in November 2014.



Sanitation Worker Steven Frosch.

**Metropolitan Avenue Bridge over English Kills (Brooklyn)**

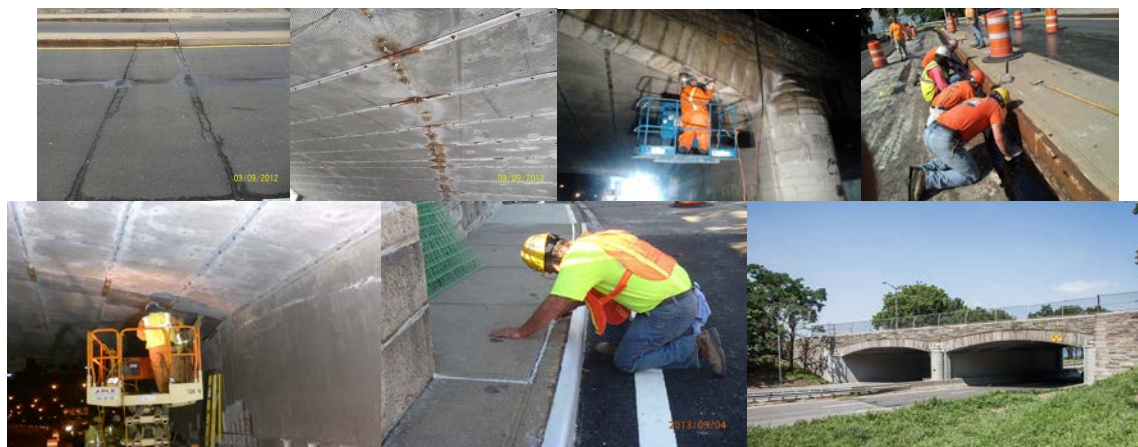
A Letter of Intent for the emergency repairs of the bridge was issued to the contractor with a start date of June 23, 2014.

**Pennsylvania Avenue Bridge over Belt Parkway (Brooklyn)**

Cleaning and painting of the bridge, which began on April 9, 2014, was completed on June 25, 2014.

**4<sup>th</sup> Avenue Bridge over Belt Parkway (Brooklyn)**

The component rehabilitation of this bridge was substantially completed on June 27, 2014.



4<sup>th</sup> Avenue Bridge Before, During, and After Construction

**Manhattan Bridge**

Gilf's "Trust Your Vision," part of the Agency's Urban Art Program, and in partnership with the DUMBO Business Improvement District, was a mural constructed with wood, enamel and lacquer. The piece was inspired by mazes which allude to the difficulty of navigating through life especially in the competitive world of New York City. Gilf's abstract work invited the viewer to decipher the hidden messages in the abstract piece. Bright paint colors were specifically chosen to bring life to the gray fence and energize visitors and inhabitants of the neighborhood. The

mural was installed by in-house forces in June 2014 on the existing fence of the Division's Front Street Yard near the Manhattan Bridge.



Division Staff Installing the "Trust Your Vision" Exhibit on the Front Street Fence.

**Ed Koch – Queensboro Bridge**

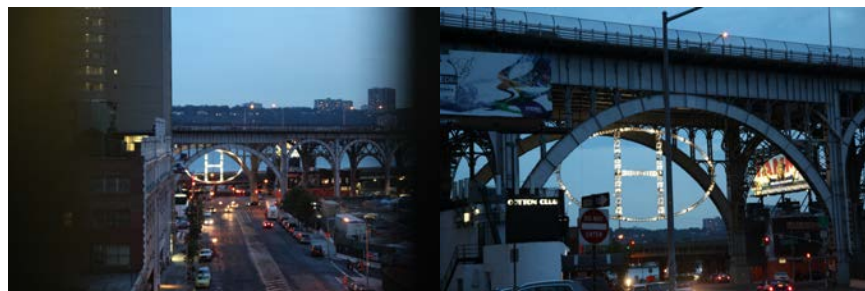
Mohamed Sharkawy's "Birds," part of the Agency's Urban Art Program, and in partnership with the International Studio and Curatorial Program, was a series of six decorative panels along the corrugated metal fence at Vernon Boulevard and Queens Plaza South. Inspired by Egyptian wall painting, the artist reduced each form into flat silhouettes in order to render recognizable images. The fanciful bird scenes referenced the lives of birds that migrate through New York annually. The birds expressed freedom and movement along with stillness and meditation. The exhibit opened in June 2014.



Division Staff Installing the "Birds" Exhibit on the Vernon Boulevard Fence.

**Riverside Drive Viaduct over West 125<sup>th</sup> Street to West 134<sup>th</sup> Street (Manhattan)**

Bentley Meeker's "The H in Harlem," part of the Agency's Urban Art Program, and in partnership with the West Harlem Art Fund, Community Board 9 and the 125<sup>th</sup> Street Business Improvement District, was a lighting and design project located at the Harlem Viaduct at West 125<sup>th</sup> Street and 12<sup>th</sup> Avenue. The oval was comprised of 30 white LED lights while the "H" itself was lit by white full spectrum plasma lighting fixtures. It was built to withstand hurricane force winds. The lights were weather-resistant and ran on a timer, turning on at night. The lighting structure, which hung off of the bridge, was visible from vehicles, boats and pedestrians in the surrounding area. The installation aimed to support the community's effort to attract more visitors to the local waterfront and the neighborhood. The art was exhibited for three months beginning in June 2014.



"The H in Harlem" Exhibit Under Riverside Drive.

***Belt Parkway Bridge over Bay Ridge Avenue (Brooklyn)***

In June 2014, the contractor completed Stage II deck demolition.



June 2014: Stage II Configuration. Bridge Deck Removed on Westbound Roadway. Panoramic View - Veteran's Pier at Right Above the Entrance to the NYCDEP Wastewater Treatment Plant. NYCDPR Bicycle/Pedestrian Promenade at Upper Right.

***Belt Parkway Bridge over Gerritsen Inlet (Brooklyn)***

In June 2014, the contractor installed concrete at pier #1 columns and pier #2 plinth and columns.



Finishing and Covering Plinth Concrete at Pier #1 in June 2014. Setting Rebars and Forms for Columns at Pier #2. Jamaica Bay at Left. Construction Barges and Cranes Constructing new Piers #1 and #2. Eastbound Traffic at Bottom.

## JULY

### **Brooklyn Bridge**

On the night of July 2, 2014, non-structural fascia stones lining the walls of the Brooklyn Bridge in the vicinity of Prospect Street and Washington Place fell onto the sidewalk. These stones are not a structural component of the bridge and are believed to have been installed approximately 60+ years ago. This area was isolated with jersey barriers and the material was removed as part of the immediate response. The scene was fully cleared and all roads reopened by 6:00 AM on July 3. After the immediate clean up, similar non-structural stones in the area were inspected. Several were determined to require removal. The contractor continued to remove the stone facade at the Washington and Prospect Streets abutment walls through the early part of August.



Removing the Stone Façade.

### **Lieutenant Gordon Ambelas Tribute**

The American flags on the Brooklyn Bridge were lowered to half-mast by Division painters on July 6, 2014, in tribute to Gordon Ambelas, a lieutenant in the New York City Fire Department who died in the line of duty on July 5, 2014. Lieutenant Ambelas, 40, a 14-year veteran of the Department, had been promoted just 10 months before to lieutenant. He led the members of Ladder Company 119 into a 19<sup>th</sup> floor apartment fire in a public housing development in Williamsburg. He became trapped in the fire, and later succumbed to his injuries. It was the Department's first line of duty death since Lieutenant Richard A. Nappi was killed fighting a Brooklyn warehouse blaze in April 2012. Lieutenant Ambelas was the 18<sup>th</sup> to die since 343 firefighters perished in the September 11, 2001, terrorist attacks. The flags were raised on July 11, 2014.



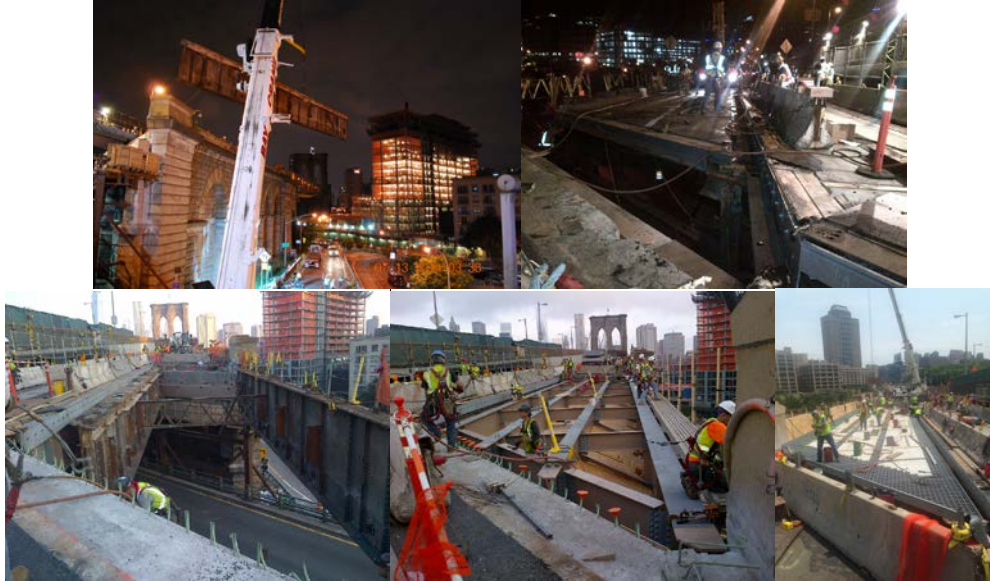
Lieutenant Gordon Ambelas.

### **Harper Street Asphalt Plant (Queens)**

On July 12, 2014, Division ironworkers repaired the fan motor, conveyor belt, and crusher.

### **Brooklyn Bridge**

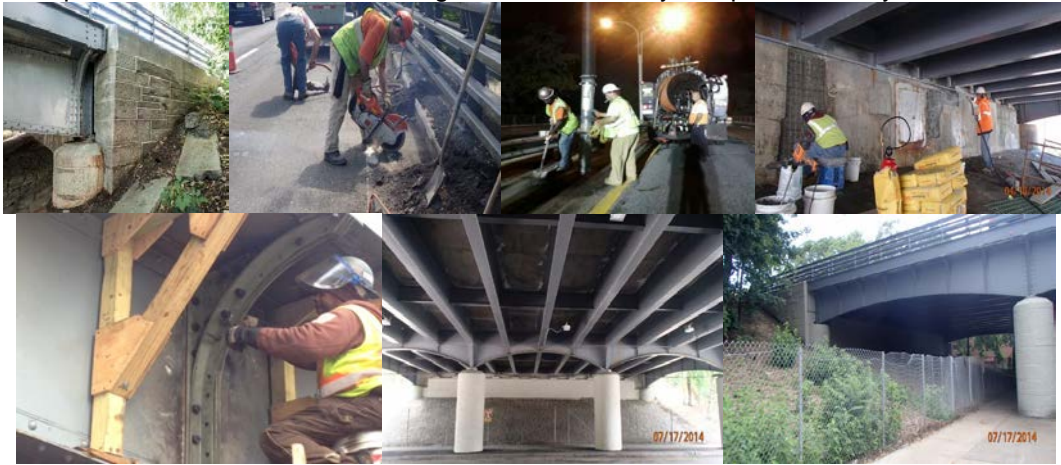
As part of the contract to rehabilitate the Brooklyn Bridge ramps and approaches, a full closure of the Manhattan-bound lanes of the bridge was in place from 11:00 PM July 11 to 5:00 AM July 14, 2014. This facilitated the replacement of the second half of the existing Manhattan-bound York Street/Brooklyn Queens Expressway bridge structure with a new steel structure and a partially-filled grid deck. This also required nighttime closures of the Brooklyn Queens Expressway. Additional work included power-tool cleaning and painting of the two-rail safety barrier at the Brooklyn main and side spans and the Manhattan approach promenade railing and super slab installation at the Manhattan approach.



July 2014: Replacing the Second Half of the York Street Structure. Removal of the Manhattan-Bound Girder. Old Deck and Most of the Steel Removed. New Steel and Prefabricated Deck in Place.

***Belt Parkway Bridge over Bedford Avenue (Brooklyn)***

The component rehabilitation of this bridge was substantially completed on July 15, 2014.



Bedford Avenue Bridge Before, During, and After Construction.

***Brooklyn Bridge***

On July 18, 2014, the Agency's summer interns visited the Brooklyn Bridge. Divisional responsibilities and capabilities were discussed and questions were answered.



Assistant Civil Engineer Clara Medina (in Safety Vest) With the Interns on the Bridge.  
(Credit: Michelle Kaucic)

**Brooklyn Bridge**

As part of the contract to rehabilitate the Brooklyn Bridge ramps and approaches, a full closure of the Manhattan-bound lanes of the bridge was in place from 11:59 PM July 18 to 6:00 AM July 21, 2014. This facilitated the concrete closure pours on the Manhattan-bound Main Street structure.



July 2014: Set up for Main Street Structure Concrete Pour. Concrete Pour Complete With Wet Burlap in Place for Cure.

**Bruckner Expressway over Westchester Creek (Bronx) (a.k.a. Unionport Bridge)**

Due to heat expansion, the Unionport Bridge was closed to marine traffic beginning at 5:21 AM on July 22, 2014. It was returned to service at 7:30 PM on July 23.

**Belt Parkway Bridge over Bay Ridge Avenue (Brooklyn)**

In July 2014, the contractor completed the installation of concrete for the Stage II upper stem wall sections of the east and west abutments.



July 2014: Placing Concrete for Northeast Abutment Using a Conveyor. Setting Rebars at the Northeast Abutment.

**Belt Parkway Bridge over Gerritsen Inlet (Brooklyn)**

In July 2014, the contractor installed concrete for the east abutment and pier #1 cap beam pedestals and pavement for the east approach.

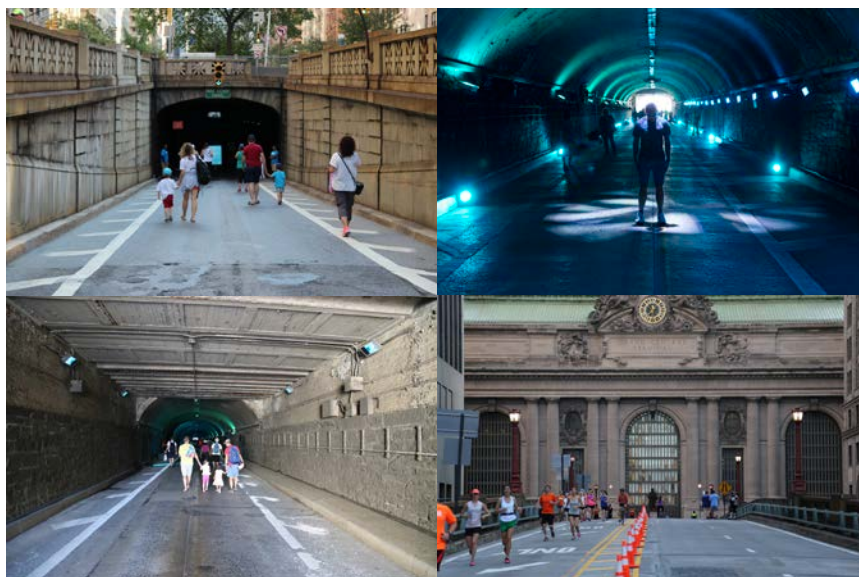


July 2014: Bottom Dump Bucket Used to Place Concrete for Pedestals at Pier #1 Cap Beam. Placing PCC Pavement at East Approach. Spreading and Compacting Hot Mix Asphalt on Belt Parkway East Side of Bridge.

**AUGUST**

***Park Avenue Tunnel over 34<sup>th</sup> Street (Manhattan)***

As part of the seventh annual Summer Streets program in August 2014, the Park Avenue Tunnel, which runs from 33<sup>rd</sup> Street to 40<sup>th</sup> Street, was open to pedestrians at the 33<sup>rd</sup> Street entrance between the hours of 7 AM and 1 PM on August 2, 9, and 16, 2014. “Dive” was an interactive sound installation by Norwegian artist Jana Winderen. She created immersive soundscapes in the tunnel using underwater recordings from around the world. As participants “dove” deeper into the tunnel, the sound environment changed, reflecting different underwater habitats. The sounds were recorded from shallow to deep underwater environments in Greenland, Iceland, Norway, Russia, Canada, United States, Thailand, and most recently around the equator in the Caribbean and the Pacific. Ms. Winderen recorded sounds made by crustaceans, fish and mammals using sensitive hydrophones.



“Dive” Exhibit in the Park Avenue Tunnel. Experiencing the Viaduct in a Whole New Way During Summer Streets 2014.

***Hempstead Avenue Bridge over Cross Island Parkway (Queens)***

Cleaning and painting of the bridge, which began on April 30, 2014, was completed on August 5, 2014.

***Inwood Hill Park Footbridge over Amtrak 30<sup>th</sup> Street Branch (Manhattan)***

This is a six span bridge. The main bridge is constructed of steel plate girders with a reinforced concrete deck. The east-west oriented main span is over the Amtrak railroad tracks. The staircases are constructed of steel stringers and a pier along with metal steps lined with anti-slip treads and landing platforms. The bridge serves as the only access for pedestrians to walk across the Amtrak rail road, which divides the park into two halves, in order to reach the playground on the west side of the park. The scope of rehabilitation work included the following: installing and removing a containment system for paint removal; painting the steel girders, fencing, and staircases; repairing the steel girders, staircases, abutments, piers, deck and underdeck; installing and removing the temporary support; repairing and replacing bearings, and installing a bicycle railing on the staircase. The component rehabilitation of this bridge began in July 2013 and was substantially completed on August 11, 2014.





Inwood Hill Park Footbridge Before, During, and After Construction.

**West 148<sup>th</sup> Street Pedestrian Bridge over Amtrak 30<sup>th</sup> Street Branch**

This five span steel girder – floor beam pedestrian bridge was built in 1940. It is bounded by Riverside Drive on the East and Henry Hudson Parkway on the west. The stairway provides access to the main bridge to cross the Amtrak railway. The scope of rehabilitation work included the following: repairing the girders and the underdeck, abutments and stone masonry; installing and removing the temporary support structure; replacing and repairing bearings; repair of the staircase; applying the containment system for paint removal, and removing and replacing the fence panels. The component rehabilitation of this bridge began in July 2013 and was substantially completed on August 11, 2014.



West 148<sup>th</sup> Street Bridge Before, During, and After Construction.

**Bryant Avenue Bridge over Amtrak & CSX (Bronx)**

A Notice to Proceed for the reconstruction of this bridge was issued to the contractor with a start date of August 18, 2014.



Bryant Avenue Bridge in 2011. (Credit: NYSDOT)

**Crown Street Bridge over Franklin Shuttle (Brooklyn)**

The component rehabilitation of this bridge was substantially completed on August 20, 2014.



Crown Street Bridge Before, During, and After Construction.

**Brooklyn Bridge**

As part of the contract to rehabilitate the Brooklyn Bridge ramps and approaches, a full closure of the Brooklyn-bound lanes of the bridge was in place from 11:59 PM August 22 to 5:00 AM August 25, 2014. This facilitated the concrete placement of the armored joints and curbs at the Brooklyn and Manhattan approaches and the closure pour at the Sands Street structure. Additional work included painting at Ramp A, power-tool cleaning and painting of two-rail safety barrier and touchup paint application at the Manhattan main and side spans, new railing installation at the Brooklyn approaches and waterproofing membrane installation at the Franklin structure orthotropic deck joints.



August 2014: Brooklyn-Bound Sands Street Structure Curing After Closure Pour Concrete Placement.

**Belt Parkway Bridge over Bay Ridge Avenue (Brooklyn)**

In August 2014, the contractor installed seven precast box beams on the north side abutments.



August 2014: Unloading and Placing the Pre-cast Concrete Box Beam on the North Side Abutments. Lowering the Third Pre-cast Concrete Box Beam.

***Belt Parkway Bridge over Gerritsen Inlet (Brooklyn)***

In August 2014, the contractor demolished and rebuilt the pier #2 columns and installed pavement at the west approach to the bridge.



August 2014: Pumping Concrete Into Column Cage at Pier #2. Finishing Pavement at West Approach.

**SEPTEMBER**

***Patriot Day Tribute***

The Brooklyn Bridge flags flew at half-mast on September 11, 2014 to commemorate the National Day of Service and Remembrance.



Brooklyn Bridge Flag at Half-Mast at Dusk.  
(Credit: Michele N. Vulcan) NYC Logo.

***Officer Michael Williams Tribute***

The American flags on the Brooklyn Bridge were lowered to half-mast by Division painters on September 22, 2014, in tribute to Police Officer Michael Williams, 25, who died in the line of duty on September 21, 2014. He was killed in a vehicle crash on the Bruckner Expressway en route to an assignment at the United Nations. Officer Williams had served with the Department for eight months and had previously served with the Dutchess County Sheriff's Department. The flags were raised on September 26, 2014.



Officer Michael Williams.

**Jackie Robinson Parkway – Union Turnpike over Austin Street (Queens)**

Cleaning and painting of the bridge, which began on November 1, 2013, was completed on September 30, 2014.

**Brooklyn Bridge**

In September 2014, the Acting Administrator of the Federal Highway Administration and the Commissioner of the New York State Department of Transportation visited the Brooklyn Bridge project.



Administrative Staff Analyst Karin Sommer, NYSDOT Region 11 Director Sonia Pichardo, Chief Resident Engineer Anthony Grosso (Behind Director Pichardo), NYSDOT Commissioner Joan McDonald, Federal Highway Administration – New York Division Administrator Jonathan D. McDade (Behind Commissioner McDonald), Acting Administrator of the Federal Highway Administration Gregory G. Nadeau, NYCDOT Commissioner Polly Trottenberg, Deputy Commissioner for Finance, Contracting, and Program Management Joseph H. Jarrin, Chief Bridge Officer Robert O. Collyer, Resident Engineer Douglas Reese, and Director of East River Bridges Hasan Ahmed on a Tour of the Brooklyn Bridge Project.

**Manhattan Bridge**

“Personal Mythologies,” an art installation curated by United Photo Industries' Creative Director Sam Barzilay, and part of the Agency’s Urban Art Program, showcased work by seven artists who employ, interpret, and manipulate mythological motifs as their vehicle for self-expression. Installed on a 350 foot long fence beneath the Manhattan Bridge, this photo installation took visitors on a voyage through childhood dreams and fears, unbridled imagination, and the artists’ ability to see the world not as it is, but as it could—and perhaps should—be. The exhibit opened in September 2014.



“Personal Mythologies” Exhibit Under the Manhattan Bridge.

**Metropolitan Avenue (Fresh Pond) Bridge over LIRR – NY & ATL (Queens)**

Andrea Bergart’s “Swish Swash,” part of the Agency’s Urban Art Program, was created in

collaboration with the Queens Council in the Arts. The 144 foot by 6 foot banner was located along a chain link fence on Metropolitan Avenue and Fresh Pond Road in Ridgewood, Queens. Influenced by diverse visual traditions, including African textiles, urban fashion and geometric abstractions, it was a whimsical display of line and color that aimed to brighten up the corridor along Metropolitan Avenue. The exhibit opened in September 2014.



Division Staff Installing the "Swish Swash" Exhibit Along Metropolitan Avenue.

***Belt Parkway Bridge over Bay Ridge Avenue (Brooklyn)***

In September 2014, the contractor placed the rebars for the deck slab.



September 2014: Rebars in Place Prior to Placing Concrete Deck on Precast Concrete Beams on the North Side.

***Belt Parkway Bridge over Gerritsen Inlet (Brooklyn)***

In September 2014, the contractor completed installing the pier #2 cap beam concrete.



September 2014: Finishing Concrete on Pier Cap at Pier #2. Setting Forms for Concrete Pedestals at Pier #2 Cap Beam. Work Barge and Crane in Background.

**OCTOBER**

***Riverside Drive Viaduct over West 125<sup>th</sup> Street – West 134<sup>th</sup> Street and West 134<sup>th</sup> Street Bridge over Terrain (Manhattan)***

A Notice to Proceed for the painting of these bridges was issued to the contractor with a start date of October 1, 2014. The anticipated start of blasting and painting is in early spring 2015. The first stage of the work will consist of paint removal by abrasive blasting. Since the existing

paint is expected to contain lead, the work will be performed within an entirely sealed Class 1A Containment.



Riverside Drive Viaduct and West 134<sup>th</sup> Street Bridge.

**Customer Service Award**

On October 3, 2014, the users of the Agency Response Tracking System were honored during the Agency's celebration of Customer Service Week. Since 2008 the City has formally observed Customer Service Week, which takes place the first week in October. The Customer Service Group of the Mayor's Office of Operations coordinates the participation of more than 20 agencies in this fun and festive week where agencies recognize the important contributions of frontline staff. The highlight of the week is the awards ceremony where each agency winner receives their Customer Service Excellence Award.



Secretary Patricia Foster at the Customer Service Week Award Ceremony.

***Cross Bay Boulevard Bridge over Belt Parkway, South Conduit Boulevard Bridge over Southern Parkway, Sunrise Highway Bridge WB over Laurelton Parkway EB, Sunrise Highway Bridge WB over Laurelton Parkway WB, Cross Island Parkway Bridge over Dutch Broadway – 115<sup>th</sup> Avenue, 163<sup>rd</sup> Avenue Pedestrian Bridge over Hawtree Basin, 102<sup>nd</sup> Street Bridge over Hawtree Basin, Whitelaw Pedestrian Bridge over Conduit Avenue, and Ramp to Linden Boulevard over South Conduit Avenue (Queens)***

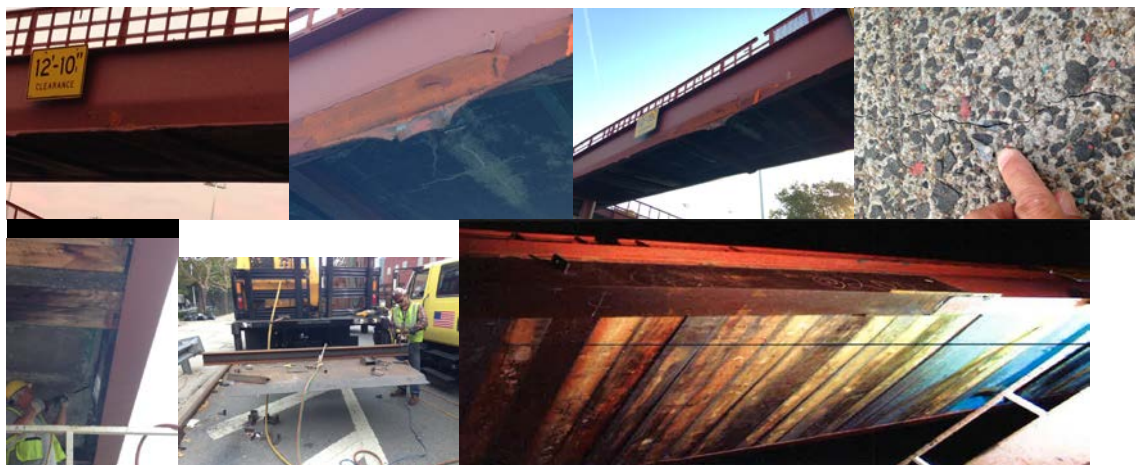
A Notice to Proceed for the painting of these bridges was issued to the contractor with a start date of October 10, 2014.



Cross Bay Boulevard Bridge over Belt Parkway, South Conduit Boulevard Bridge over Southern Parkway, Sunrise Highway Bridge WB over Laurelton Parkway EB, Sunrise Highway Bridge WB over Laurelton Parkway WB, Cross Island Parkway Bridge over Dutch Broadway – 115<sup>th</sup> Avenue, 163<sup>rd</sup> Avenue Pedestrian Bridge over Hawthtree Basin, 102<sup>nd</sup> Street Bridge over Hawthtree Basin, Whitelaw Pedestrian Bridge over Conduit Avenue, and Ramp to Linden Boulevard over South Conduit Avenue.

***East 128<sup>th</sup> Street Pedestrian Bridge over 3<sup>rd</sup> Avenue Bridge Approach (Manhattan)***

On October 9, 2014, a boom-truck travelling west struck the bridge, creating structural safety flag conditions: the middle portion of the bridge was pushed out about one and a half feet, the end girders and diaphragms were twisted, and a concrete slab was displaced. Crews made the area safe with jersey barriers and reinforcements of the girders and concrete slab. The ramp was closed from 5:00 AM until 6:00 PM the following day. Additional repairs were performed on the nights of October 15 and 16: crews installed additional diaphragms, shielding, and longitudinal supports.





East 128<sup>th</sup> Street Pedestrian Bridge Strike and Emergency Repairs. Left Elevation of Bridge. Timber Shielding Installed on Underside of Span #9 to Prevent Loose Concrete From Falling on the Road. Right Girder at Span #9 After Repair.

***East 128<sup>th</sup> Street Pedestrian Bridge over 3<sup>rd</sup> Avenue Bridge Approach (Manhattan)***

On October 9, 2014, the second grade students of Success Academy Harlem 2 (located on East 128<sup>th</sup> Street), asked many questions about the bridge strike and the Division’s response. Each year, the second graders participate in a project based learning unit on bridges, and visit and photograph several bridges.



Second Grade Students (With Their Teachers Mr. Owen and Ms. Lee). Their Questions Were Answered by Supervisor Carpenter Joseph DiBlasi (in Safety Vest on Left) and Carpenter Ruben Urena (on Right).  
(Credit: Jaclyn Fosso)

***American Cancer Society’s “Making Strides Against Breast Cancer” Campaign***

During September and October 2014, Division personnel and their friends and families participated in bake and book sales and other fundraisers, and sponsored the DOT Teams for the American Cancer Society’s annual “Making Strides Against Breast Cancer” walk.

***Brooklyn Bridge***

As part of the contract to rehabilitate the Brooklyn Bridge ramps and approaches, a full closure of the Brooklyn-bound lanes of the bridge was in place from 11:59 PM October 10 to 5:00 AM October 13, 2014.



October 2014: Brooklyn-Bound Approach Waterproofing.

***Brooklyn Bridge***

As part of the contract to rehabilitate the Brooklyn Bridge ramps and approaches, a partial closure



of the Manhattan-bound lanes of the bridge was in place from 11:59 PM October 17 to 11:00 AM October 19, 2014. This facilitated the preparation for the closure pour concrete placement at the Sands Street structure, curb installation at the Brooklyn approach, orthotropic deck installation at the Franklin Square structure, steel repairs and touch-up painting at the suspended spans, painting of the main cables and suspender ropes, and removal of abrasive-blast-related ductwork from the underside of the Manhattan side span.



October 2014: Sands Street Structure – Preparing for Closure Pour. Containment Installation at Brooklyn Approach Structures. October 2014: Franklin Square Structure – Deck Alignment and Welding. Painted Manhattan Ramp.

**Hamilton Avenue Asphalt Plant (Brooklyn) and Harper Street Asphalt Plant (Queens)**

On October 25, 2014, Division ironworkers repaired the chute and mixing drum.

**Brooklyn Bridge**

As part of the contract to rehabilitate the Brooklyn Bridge ramps and approaches, a full closure of the Manhattan-bound lanes of the bridge was in place from 11:59 PM October 24 to 6:00 AM October 27, 2014. This facilitated the completion of rehabilitation work on the Manhattan-bound Sands Street and York Street structures.



October 2014: York Street Structure – Closure Pour. Sands Street Structure – Curb Mall.

**Brooklyn-Queens Expressway West Leg over Grand Central Parkway (Queens)**

Cleaning and painting of the bridge, which began on August 25, 2014, was completed on October 28, 2014.

**Greenpoint Avenue Bridge over Newtown Creek (Brooklyn/Queens)**

Contractor cleaning and painting of the bridge, which began on February 6, 2013, was substantially completed on October 28, 2014.

**47<sup>th</sup> Street Bridge over Grand Central Parkway (Queens)**

Cleaning and painting of the bridge, which began on August 11, 2014, was completed on October 28, 2014.

**Hurricane Sandy Tribute**

The Brooklyn Bridge flags flew at half-mast on October 29, 2014, in recognition of the two year anniversary of Hurricane Sandy, and as a mark of respect for those who lost their lives in its wake.

**Union Street Bridge over Gowanus Canal (Brooklyn)**

Carlton Scott Sturgill's "Bridge of Flowers," part of the Agency's Urban Art Program, was created in collaboration with Arts Gowanus. The colorful installations, located on the chain link fence on either side of the Gowanus Canal on Union Street, brought a taste of the natural world to the industrial fences they were woven into. Made from secondhand Ralph Lauren Polo shirts (as a fitting symbol of a constructed persona), Sturgill created one purple and one red rose bush, each entirely from the shirts. The flowers brought a change of pace to the industrial landscape characteristically associated with Gowanus, with their striking resemblance to real roses. The exhibit opened in October 2014.



"Bridge of Flowers" Exhibit near the Union Street Bridge.

**Belt Parkway Bridge over Bay Ridge Avenue (Brooklyn)**

In October 2014, the contractor installed a cast-in-place concrete deck wearing surface on the new precast beams.

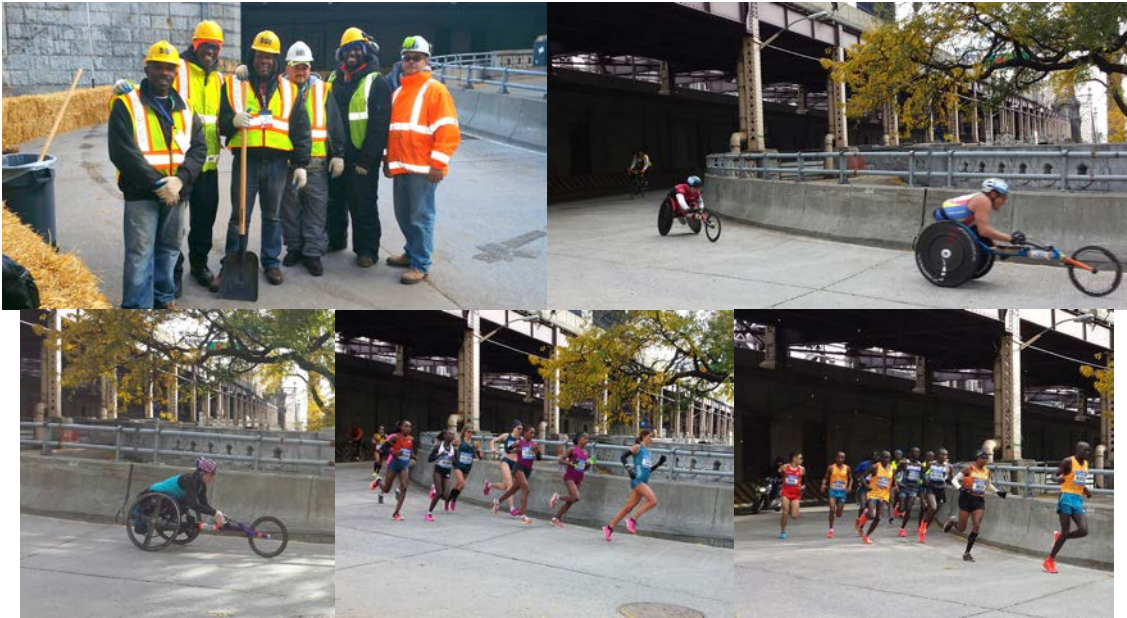


October 2014: Placing and Vibrating the Concrete Deck at the Bridge Facing West. Applying a Broom Finish Texture to the Deck Concrete.

**NOVEMBER**

***New York City Marathon***

In preparation for the Marathon on November 2, 2014, Division personnel mechanically swept the Pulaski, Ed Koch - Queensboro (lower level), Willis Avenue, and Madison Avenue bridges and patrolled for potholes. Crews reconfigured the Jersey barriers on the Ed Koch - Queensboro Bridge's outer roadway and 60<sup>th</sup> Street ramp, and installed hay bales.



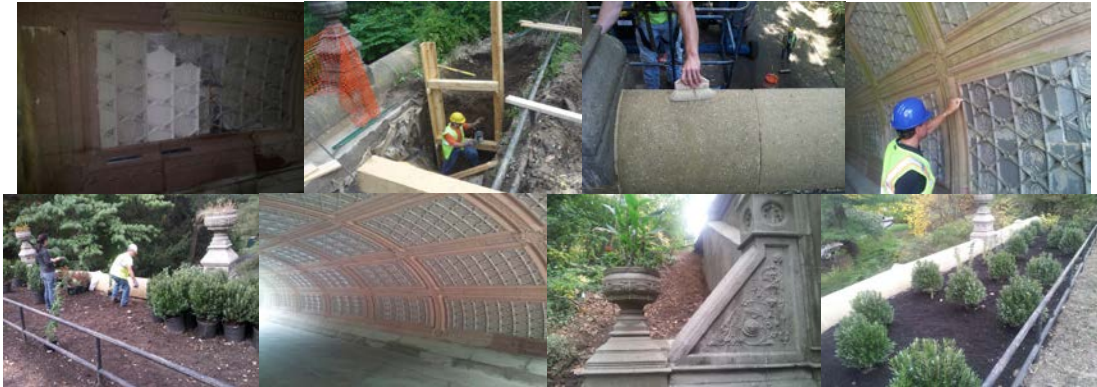
Crew After Installing Straw Bales on the Ed Koch – Queensboro Bridge: Highway Repairers Ralston Myers, Robert Bynes, Rudolph Bentley, and Gary George, Assistant City Highway Repairer Daniel Jean, and Supervisor Highway Repairer Anthony Irizarry.. (Credit: Clara Medina) At Mile 16 – the Ed Koch Queensboro Bridge, Coming Down the South Outer Roadway onto 59<sup>th</sup> Street. Men's Pushrim Wheelchair Leaders. United States' Tatyana McFadden – Winner, Women's Pushrim Wheelchair. Morocco's Rkia El Moukim (6<sup>th</sup> Place – Pink Shirt, Obscured Behind Sumgong), Kenya's Jemima Sumgong (2<sup>nd</sup> Place – 2<sup>nd</sup> From Left), Kenya's Mary Keitany (Winner – 3<sup>rd</sup> From Left), Italy's Valeria Straneo (8<sup>th</sup> Place – 4<sup>th</sup> From Left), Latvia's Jelena Prokopcuka (4<sup>th</sup> Place – 4<sup>th</sup> From Right), Ethiopia's Firehiwot Dado (7<sup>th</sup> Place – 3<sup>rd</sup> From Right), Ethiopia's Buzunesh Deba (9<sup>th</sup> Place – 2<sup>nd</sup> From Right), Portugal's Sara Moreira (3<sup>rd</sup> Place – On Right). Japan's Masato Imai (7<sup>th</sup> Place – On Left), Republic of South Africa's Lusapho April (12<sup>th</sup> Place – 2<sup>nd</sup> From Left), Uganda's S. Kiprotich (5<sup>th</sup> Place – 3<sup>rd</sup> From Left), Kenya's M. Kiprego (16<sup>th</sup> Place – 4<sup>th</sup> From Left), United States' Meb Keflezighi (4<sup>th</sup> Place – 2<sup>nd</sup> From Right), Kenya's Geoffrey Mutai (6<sup>th</sup> Place – 3<sup>rd</sup> From Right), Kenya's Wilson Kipsang (Winner – 4<sup>th</sup> From Right), Ethiopia's Lelisa Desisa (2<sup>nd</sup> Place – 5<sup>th</sup> From Right), Kenya's Peter Kirui (8<sup>th</sup> Place – On Right). (Credit: Paul Schwartz)

***Moshulu Parkway Bridge over Conrail (Abandoned), Leggett Avenue Bridge over Amtrak, East 162<sup>nd</sup> Street Bridge over Metro North RR HAR, East 165<sup>th</sup> Street Bridge over Metro North RR HAR, East 187<sup>th</sup> Street Bridge over Metro North RR HAR, Southern Boulevard Bridge over East Fordham Road, Grand Concourse Bridge over East 167<sup>th</sup> Street, East 180<sup>th</sup> Street Bridge over Bronx River, Riverside Drive Bridge over West 138<sup>th</sup> Street, Riverside Drive Bridge over West 145<sup>th</sup> Street, and the Pulaski Bridge Bicycle Path (McGuinness Boulevard over Newtown Creek)***

A Notice to Proceed for the component rehabilitation of these 10 bridges in the Bronx and Manhattan, as well as the creation of a protected bicycle path on the Pulaski Bridge was issued to the contractor with a start date of November 3, 2014.

***Hill Drive Bridge (Cleft Ridge Span) over Pedestrian Path South of Boathouse (Brooklyn)***

The component rehabilitation of this bridge was substantially completed on November 5, 2014.



Cleft Ridge Span Before, During, and After Construction.

**Brooklyn Bridge**

On November 5, 2014, 3<sup>rd</sup> year civil engineering students at the Rensselaer Polytechnic Institute visited the Brooklyn Bridge. Divisional responsibilities and capabilities were discussed and questions about the Brooklyn Bridge reconstruction project were answered.



The Rensselaer Polytechnic Institute Students on the Bridge.

**West 191<sup>st</sup> Street Pedestrian Tunnel under Broadway – IRT #1 Subway (Manhattan)**

The presence of significant areas of mold and loose lead-based paint on the inside walls of the tunnel required removal of these materials and a repainting of the entire interior surface of the tunnel. Quick action was taken when our contractor was able to mobilize to take advantage of a MTA General Order closing off the pedestrian traffic in the tunnel for one weekend. The underpass was closed the weekend of November 7-9, 2014 for mold remediation, graffiti removal, and painting. Our contractor completed the entire work ahead of schedule.



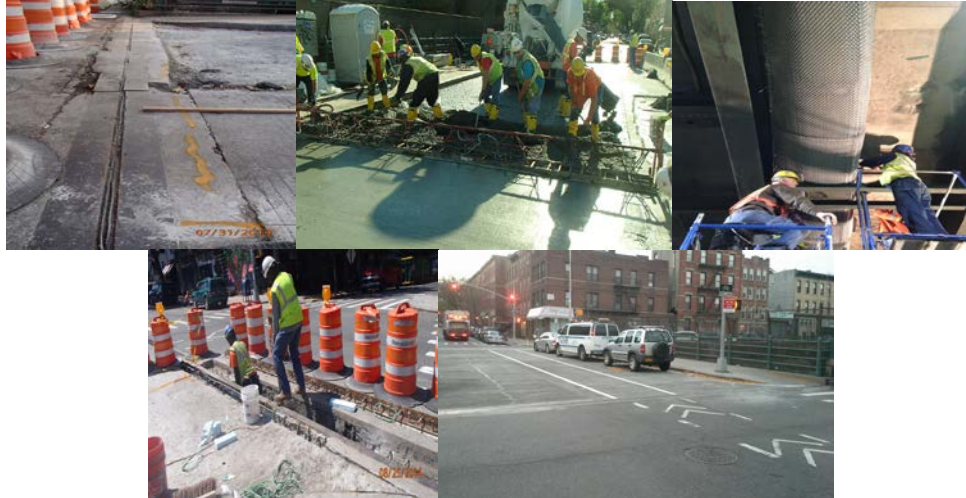
West 191<sup>st</sup> Street Tunnel - Before and After. (Credit: Thomas Leung)

**Hamilton Avenue Asphalt Plant (Brooklyn) and Harper Street Asphalt Plant (Queens)**

On November 8 and 15, 2014, Division ironworkers repaired the main drum, loader bin, and conveyor pipe.

**Union Street Bridge over Brooklyn-Queens Expressway (Brooklyn)**

The component rehabilitation of this bridge was substantially completed on November 13, 2014.



Union Street Bridge Before, During, and After Construction.

**Harlem River Drive Bridge (NB & SB) at East 127<sup>th</sup> Street (Manhattan)**

A Notice to Proceed for the reconstruction of these structures was issued to the contractor with a start date of November 10, 2014.

**88<sup>th</sup> Annual Macy’s Thanksgiving Day Parade**

Division engineers reviewed and approved the design specifications of Thomas the Tank Engine, Paddington Bear, Power Ranger, Erptor Skylander, Pikachu, and Pillsbury Dough Boy, five new and one returning large balloons to be introduced in the parade. A balloon is classified as large if it is larger than 5,000 cubic feet. However, the balloons in the parade cannot be taller than 70 feet, wider than 40 feet, or longer than 78 feet. Division representatives attended the test flights of the balloons at the Meadowlands Sports Complex in New Jersey on November 8, 2014, with NYPD and other agencies. A wireless anemometer station was set up to give real time wind speed, and cones were placed out simulating the street envelope. Macy’s performed test flights on each new balloon according to the current wind gust, and flew the balloons to the required flying height.

On November 27, 2014, wind speeds were relatively low and all 16 large balloons flew in the parade without incident. The wind gusts varied between 9 to 15 miles per hour. Chief Bridge Officer Robert O. Collyer, Deputy Chief Engineer Anil Vyas, Director of Engineering Review Udaya Dommaraju, Construction Project Manager George Jarvis, Civil Engineer Ashok Chintakunta, Assistant Civil Engineer Jafar Haider, and three consultant engineers were positioned at various locations along the parade route to observe compliance with the approved procedures. Seven anemometers were mounted on top of light poles along the route between 77<sup>th</sup> Street and 34<sup>th</sup> Street to measure the wind speed during the parade. Division and consultant engineers were assigned to the anemometer locations to monitor the wind gusts.



Testing the Paddington Bear and Pikachu Balloons in New Jersey on November 8. (Credit: George Jarvis)



Parade 2014: Executive Director of Operations, Office of Special Events Matthew Cavallino, First Deputy Commissioner Lori A. Ardito, Chief Bridge Officer Robert O. Collyer, Assistant Commissioner Special Events Brenda Rivera, and Director of Engineering Review Uday Dommaraju. Thomas the Tank Engine. Paddington Bear. (Bear Credit: George Jarvis)

**Atlantic Avenue Service Road Eastbound and Westbound over East New York Avenue (Brooklyn)**

Cleaning and painting of these bridges, which began on April 4, 2014, was completed on November 26, 2014.

**Harper Street Asphalt Plant (Queens)**

On November 29, 2014, Division ironworkers repaired the staircase around the scale, patched a hole inside the main drum, and replaced a damaged paddle in the main drum feeder.

**West 45<sup>th</sup> Street Bridge over Amtrak 30<sup>th</sup> Street Branch (Manhattan)**

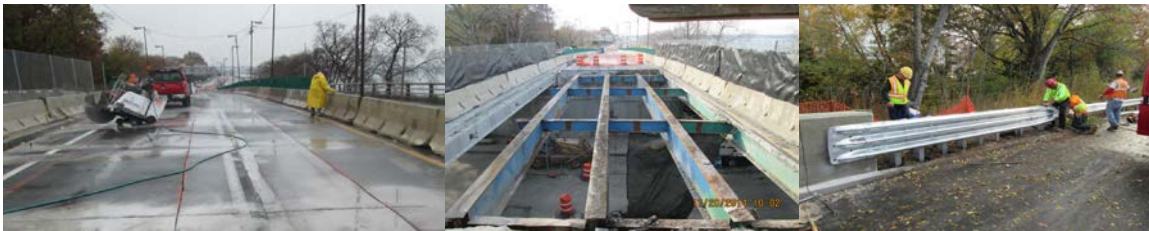
Asae Soya’s mural, “Ringing Waves,” part of the Agency’s Urban Art Program, was created in collaboration with the International Studio and Curatorial Program. The piece served as a metaphor for the sound waves that flow within New York City and create energy among the vast variety of people and places. Abstract expressions of sound waves in the forms of voices, traffic, music and more coexisted together in this multicolored mural on the 45<sup>th</sup> Street Bridge. The exhibit opened in November 2014.



“Ringing Waves” Exhibit on the 45<sup>th</sup> Street Bridge.

**Belt Parkway Bridge over Bay Ridge Avenue (Brooklyn)**

In November 2014, the contractor saw cut and removed the existing Stage II reinforced concrete bridge deck.



November 2014: Saw Cutting the Old Westbound Bridge Deck Being at the Start of Stage III. Exposed Stringers After Removal of the Concrete Bridge Deck During Stage III. Facing East. Setting Tri-Beam Corrugated Guide Rail Connection to the Concrete Parapet on the New Westbound Bridge.

### ***Belt Parkway Bridge over Gerritsen Inlet (Brooklyn)***

In November 2014, the contractor drove steel sheeting for temporary access road at the east approach.



November 2014: Driving Steel Sheeting at East Approach for the Future Temporary Access Roadway.

## **DECEMBER**

### ***Deputy Commissioner Ronald Cohen Tribute***

The Brooklyn Bridge flags flew at half-mast on December 1, 2014, in tribute to former Deputy Commissioner Ronald Cohen, 47, who died on November 25, 2014. A City employee for 26 years, Mr. Cohen helped lead the rescue and recovery efforts following the attacks on September 11, 2001. He served as a deputy commissioner and senior advisor in the areas of criminal justice coordination, special enforcement and citywide event coordination for the New York City Criminal Justice Coordinator's Office and the Mayor's Office of Citywide Event Coordination and Management. Earlier in his career he served in the Sanitation Department and the Business Integrity Commission (formerly known as the New York City Trade Waste Commission). Among his numerous awards were the Isaac Lieberman Public Service Award – an award given to career public servants who demonstrate dedication beyond their job performance and have improved the efficiency and quality of services rendered to the people of the City of New York, and the United States Department of Justice Public Service Award for Meritorious Service – an award given to civil servants who have made material contributions to raising the standards of cooperative Law Enforcement.

### ***Congressman Herman Badillo Tribute***

The American flags on the Brooklyn Bridge were lowered to half-mast by Division painters on December 3, 2014, in tribute to four term Congressman Herman Badillo, 85, who died on December 3. Mr. Badillo was the first Congressman of Puerto Rican origin in the history of the nation (New York's 21<sup>st</sup> District in the Bronx). He was also the First Puerto Rican to be elected Bronx Borough President. He served as Deputy Mayor in the Koch administration and was special counsel for the Fiscal Oversight of Education during Mayor Giuliani's administration. Mr. Badillo was also Chairman of the Board of the City University of New York. Among his many other "firsts", he was a co-founder of the Puerto Rican Bar Association, and of the Puerto Rican Legal Defense and Education Fund. He was a champion of civil rights, jobs, housing and education reforms. The flags were raised on December 14, 2014.



Herman Badillo.

***Harper Street Asphalt Plant (Queens)***

On December 6 and 13, 2014, Division ironworkers repaired the shaker, hatch doors, and rap bin.

***Macombs Dam Bridge over Harlem River (Bronx/Manhattan), 145<sup>th</sup> Street Bridge over Harlem River (Bronx/Manhattan), Third Avenue Bridge over Harlem River (Bronx/Manhattan), Madison Avenue Bridge over Harlem River (Bronx/Manhattan), Hunters Point Avenue Bridge over Dutch Kills (Queens), Carroll Street Bridge over Gowanus Canal (Brooklyn), Ninth Street Bridge over Gowanus Canal (Brooklyn), Third Street Bridge over Gowanus Canal (Brooklyn), Union Street Bridge over Gowanus Canal (Brooklyn), West 207<sup>th</sup> Street/West Fordham Road Bridge over Harlem River (Bronx/Manhattan), Borden Avenue Bridge over Dutch Kills (Queens), and Grand Street Bridge over Newtown Creek (Brooklyn/Queens)***

A Letter of Intent for the emergency repairs of these bridges was issued to the contractor with a start date of December 15, 2014.

***Hamilton Avenue Asphalt Plant (Brooklyn)***

On December 20, 2014, Division ironworkers repaired the screener, conveyor belt, and silo.

***Sergeant Ramon S. Morris Tribute***

The Brooklyn Bridge flags flew at half-mast on December 22, 2014, in tribute to Army Sergeant First Class Ramon S. Morris, 37, of New York City, who was killed in action while serving in Afghanistan on December 12, 2014. Sergeant Morris died in Parwan Province, when his vehicle was attacked with an improvised explosive device. He was assigned to the Third Engineer Battalion, Third Brigade Combat Team, First Cavalry Division. His decorations included a Bronze Star Medal.



Sergeant Ramon S. Morris.

***Police Officers Wenjian Liu and Rafael Ramos Tribute***

The American flags on the Brooklyn Bridge were lowered to half-mast by Division painters on December 20, 2014, in tribute to Police Officers Wenjian Liu and Rafael Ramos of the 84<sup>th</sup> Precinct in Brooklyn, who were killed in the line of duty on December 20. While sitting in a marked NYPD vehicle car, in full uniform, both were ambushed and murdered in front of a public housing development in the Bedford-Stuyvesant area of Brooklyn. Both officers were posted at this location as part of a department crime reduction strategy to address complaints of violence in



the area of the housing developments in that area. Detective Ramos, 40, had served nearly three years in the department, while Detective Liu, 32, was a seven-year veteran of the force. Mr. Liu worked as an auxiliary officer before joining the NYPD. The officers were posthumously promoted to the rank of Detective First Grade by Police Commissioner William J. Bratton, who also appointed Mr. Ramos an honorary NYPD chaplain.



Officers Rafael Ramos and Wenjian Liu.

***Manhattan Bridge***

The bridge opened to traffic 105 years ago, on December 31, 1909.



## ACCOMPLISHMENTS & PLANNED PROJECTS

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### Bridge Capital Design & Construction

East River Bridges

Movable Bridges

Roadway Bridges

Brooklyn and Manhattan Roadway Bridges

Bronx, Queens, and Staten Island Roadway Bridges

Design-Build/Emergency Contracts

Component Rehabilitation

### Engineering Review & Support

In-House Design

Engineering Support

Engineering Review

Quality Assurance

### Bridge Maintenance, Inspections & Operations

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## ***ACCOMPLISHMENTS & PLANNED PROJECTS***

### ***East River Bridges***

#### **BROOKLYN BRIDGE**

Arguably the most influential bridge in American history, the Brooklyn Bridge remains one of New York City's most celebrated architectural wonders. Designed by the brilliant engineer John Augustus Roebling, and completed by his equally ingenious son Washington Roebling and daughter-in-law Emily Roebling, this elegant structure was, at the time of its completion in 1883, the longest suspension bridge in the world. It was declared a National Historic Landmark in 1967.



Brooklyn Bridge. (2<sup>nd</sup> Credit: Earlene Powell)

The Brooklyn Bridge carries some 102,542 vehicles and 2,661 commuter bicyclists daily. The \$936 million reconstruction commenced in 1980 with Contract #1, and continues with Contract #6, scheduled for completion in 2015. This contract includes the rehabilitation of both approaches and ramps, the painting of the entire bridge, as well as the seismic retrofitting of the structural elements that are within the Contract #6 project limits.

Work completed on the bridge to date includes reconditioning of the main cables, replacement of the suspenders and cable stays, rehabilitation of the stiffening trusses, and the replacement of the suspended spans deck and the four travelers.

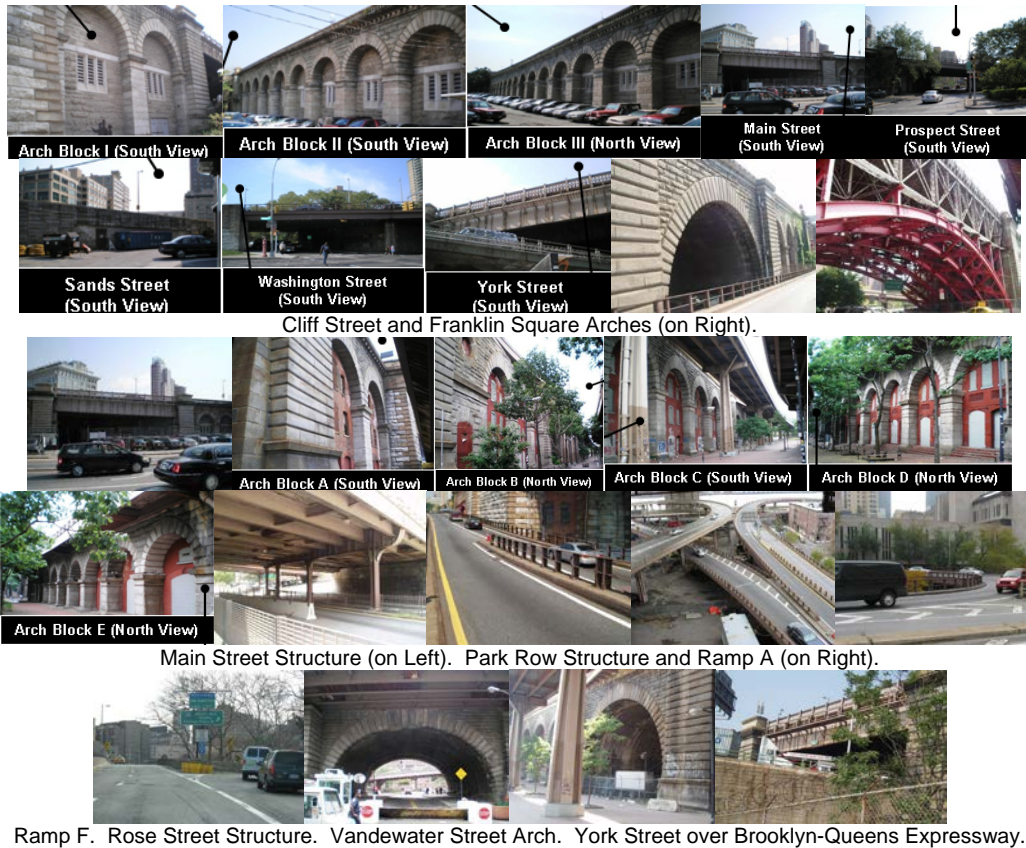
#### **Contract #6**

A Notice to Proceed for this \$508 million project was issued to the contractor with a start date of January 19, 2010. The ramps and approaches to the Brooklyn Bridge were in need of rehabilitation and repair, to improve safety and reduce congestion along both the Brooklyn-side and Manhattan-side approaches, particularly from the FDR Drive. With stimulus money from the federal government's American Recovery and Reinvestment Act, the ramps in Brooklyn and Manhattan are being rehabilitated and widened and the entire bridge is being repainted to prevent steel corrosion on the structure.

The approach roadway to the Brooklyn Bridge was aging, with a failed membrane system and deteriorated closure walls. The existing roadway pavement above the historic arch blocks and masonry structures is being rehabilitated. A precast concrete roadway slab is being installed in segments, over sprayed-on waterproofing membrane. Rusted historic railings at Franklin Square, York, and Main Street structures, some from the original bridge construction, are being refurbished and reinstalled. The existing ramp from the FDR southbound roadway was widened from one to two lanes to reduce bottlenecks and pinch points in traffic flow. All steel structures, including the ramp structures and the main span, are being painted, restoring them to their original Brooklyn Bridge Tan color, as chosen by the Landmarks Preservation Commission.

On all the bridge approach structures on both the Manhattan and Brooklyn sides, the existing deck is being removed by lifting out sections and replacing them panel by panel with precast concrete-filled steel grid deck panels. This approach greatly reduces noise from drilling and jackhammers, and also increases the reliability of the start and end times of construction activities every night.

## *ACCOMPLISHMENTS & PLANNED PROJECTS*



Painting work, to prevent steel corrosion and improve aesthetics, occurred in negative-pressure containment units that travelled along the bridge structure. All three travel lanes were maintained during the course of this work, and painting will take approximately four years to be complete. Equipment was placed underneath the FDR Drive, and on land abutting the Brooklyn tower. Dust collection, vacuum and recycle units were employed to minimize environmental air quality risks, and there has been continuous air monitoring during operations. All painting work has been conducted in accordance to the US Environmental Protection Act and NYS Department of Environmental Conservation requirements. Noise generated by these units conforms to the NYC Noise Code standards adopted in 2007.

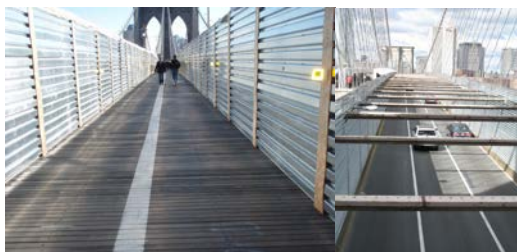
In order to facilitate the reconstruction and associated painting work, the contractor began to mobilize in the area known as the Brooklyn Banks and Red Brick Park, between Pearl Street and Park Row on the north side of the Manhattan approach of the Brooklyn Bridge. The area was closed to the public starting June 2, 2010. The security plan for this area requires that the Red Brick area be completely closed to the public for the duration of this phase of work. Pedestrian access between Pearl Street and the Rose Street/City Hall area is maintained through a walkway adjacent to the banks along Avenue of the Finest.

On the Brooklyn side, two lanes of free-flowing traffic were created at the Cadman Plaza exit, and approach roadways are being rehabilitated to replace the membrane system and deteriorated closure walls. On the Manhattan side, rusted railings and safety barriers were replaced, and two lanes of free-flowing traffic were created from the southbound FDR Drive onto the Brooklyn Bridge.

The contract allowed for 24 full weekend closures over the duration of the contract; however, the contract also contains clauses that encourage fewer weekend closures with monetary compensation. Although the promenade remained open, there were sections immediately under the painting area, which were narrowed by a foot on each side to facilitate work.

## ACCOMPLISHMENTS & PLANNED PROJECTS

In 2010, after mobilization, the contractor started work on the ramp foundation; installed protective shielding under the Brooklyn main and Brooklyn side spans, the Franklin Square structure, and some of the Manhattan ramps; installed vertical walls at both sides of the Brooklyn and Manhattan-bound roadways at the Brooklyn main and Brooklyn side spans; began the set-up of the containment for the lead paint removal at all of these locations; and proceeded with blasting and painting activities. Other activities included detailed surveying, installation of super slabs and the fabrication of precast members.



Bicycle/Pedestrian Path with Protective Shielding in November 2010. Roadway Shielding in October 2010.

Lead paint removal operations were conducted in a Class 1A containment unit. Rigid containment walls, HEPA filters, and negative air pressure were used to prevent material release. Ambient air quality readings were conducted during lead paint abatement work. Airborne lead levels were continuously monitored using high-volume total suspended particulate samplers at multiple locations in Brooklyn and Manhattan. Additional in-depth testing for volatile organic compounds was conducted at five locations in the summer of 2011.

In March 2012, airborne particulate samples were collected in accordance with regulatory guidelines, at locations where dust was most likely to be deposited during dust-generating activities. Additional tests were replicated in June 2012 for respirable silica, suspended particulates and asbestos. All results were acceptable according to standards set by the Occupational Safety and Health Administration, the National Institute for Occupational Safety and Health, and the American Conference of Industrial Hygienists.



Noise Reduction Along the Sound Pathway – Acoustical Barriers on the Bridge During Night Construction Activities. Acoustical Curtains Along Frankfort Street. Two Crews Work Along Frankfort Street in April 2012. Cranes (On Left) Lift Material In And Out of Walled Enclosures of Sound Blankets. Inspector Taking Noise Measurements.

In 2011, painting was completed at the Franklin Square structure and continued at the Manhattan ramps and Brooklyn main and Brooklyn side spans with continuous installation of protective shielding and containment. Painting of the truss top struts was also started at the Brooklyn-bound Manhattan side span. The following construction work was started in 2011: on the Manhattan approach, activities included Brooklyn-bound roadway removal, waterproofing and super slab installation, Franklin Square floor beam replacement, south cantilever beam excavation and repair, and arch block strengthening. On the Manhattan ramps, work included bearing replacement, widening, and deck replacement, and fascia removal. Asbestos abatement work took place in the Brooklyn maintenance shop. Electrical work was also in progress with activities that included light pole and abandoned equipment removal, temporary lightning installation, and temporary power provisions. Other activities included detailed surveying, testing and repairing of dry-standpipe system, fabrication of precast and steel members.

## ACCOMPLISHMENTS & PLANNED PROJECTS



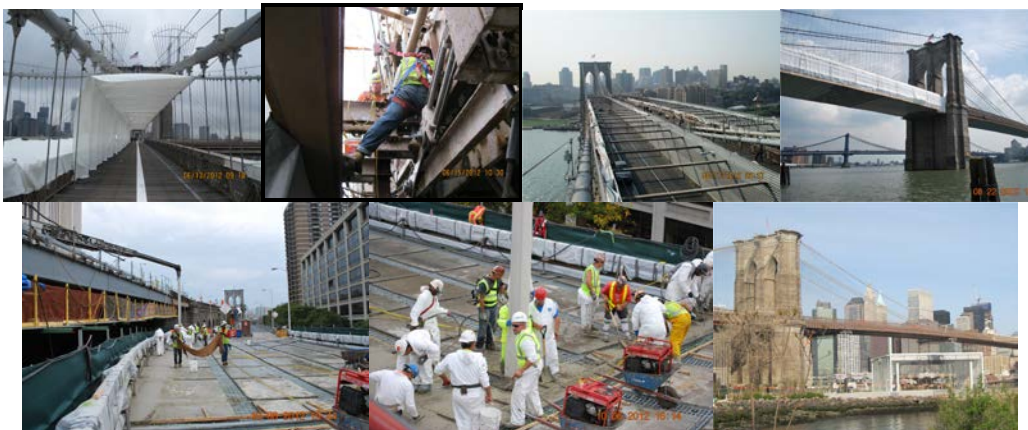
December 2011: Painted Top Struts of the Brooklyn-Bound Manhattan Side Span. Summer 2011: Manhattan Approach - Ramp C Deck Replacement. December 2011: Ramp C.

In 2012, work continued on the Manhattan side of the bridge, including deck replacement on ramps and the south cantilever, super-slab installation and arch block strengthening. Painting under the Brooklyn main and side spans was completed, as well as the top struts along the Brooklyn-bound roadway. Painting of the Manhattan main and side spans started in 2012 and continued through 2013.

In Brooklyn, new shielding was installed under the Prospect and Washington Street structure in anticipation of deck removal. In addition, preparatory work was ongoing for superstructure replacement of the York and Main Street structures.

As part of the contract to rehabilitate the Brooklyn Bridge ramps and approaches, a full closure of the Manhattan-bound lanes of the bridge was performed on two full weekends: from 11:59 PM October 5 to 6:00 AM October 8, and again from 11:59 PM October 12 to 6:00 AM October 15. The first weekend closure was for work on Ramp A (from the southbound FDR Drive to the bridge) for concrete placement. Brooklyn-bound approach work and abrasive blasting was also progressed. The second weekend closure was for work on Ramp A (from the southbound FDR Drive to the bridge), South Cantilever closure pour concrete placement, Brooklyn-bound approaches rehabilitation work, painting of Ramp D/Span 4, Franklin Square Structure orthotropic deck welding, Ramp F (from the southbound FDR Drive to Pearl Street) Stage I grid deck removal/replacement, and preparatory work for widening the exit ramp to Cadman Plaza.

Asbestos abatement was completed in the Brooklyn maintenance shop and was in progress in the Manhattan arch blocks. By the end of 2012, 321 bearings were replaced under the Manhattan ramps and the flag repairs on the suspended spans were in progress.



June 2012: Brooklyn Side Span Netting Protection for Main Cable and Suspender Rope Painting. June 2012: Structural Steel Repairs. 2012: Manhattan Main Span Vertical Wall. August 2012: Manhattan Side Span Containment at Manhattan Tower. First Full Roadway Closure: Ramp A Concrete Placement. Second Full Roadway Closure: Brooklyn Approach. December 2012: Brooklyn Main Span in Finish Coat.

In 2013, lead-based paint removal and new coating applications were completed on the Manhattan main and side spans including all four stiffening trusses, the under-deck system, and the promenade. The main bridge vertical protective shield systems were removed. Painting of the main cables, suspender cables and overhead struts continues and was approximately 60%

## ACCOMPLISHMENTS & PLANNED PROJECTS

complete. In addition to the Main Bridge painting, paint removal and coating application continues on the Manhattan side ramps and was also approximately 70% complete.



May 2013: Painter Applying Primer Stripe Coat on the Manhattan Main Span. June 2013: Painter on Sway Bracing on the Brooklyn Side Span. (View Credit: Earlene Powell) November 2013: Painting Fascia Steel on Ramp C.

2013 saw significant progress for structural rehabilitation work, which included: completion of the Brooklyn-bound orthotropic deck panel installation at the Franklin Square Structure; the installation of the new concrete-filled grid deck systems at the outbound York Street, Main Street and Park Row structures as well as Prospect Street, Washington Street and the maintenance shop deck systems for both inbound and outbound directions. Concrete-filled grid deck installation for the inbound York Street, Main Street, North Cantilever and Franklin Square structures was begun. The approach super slab installation was completed in the outbound direction and was about 20% complete inbound. The main bridge structural steel flag repairs continued to be identified by biennial and special inspections.

In 2013 three significant traffic improvements were implemented that changed exits from one-lane exit to two-lane exits, thereby reducing queuing-related congestion. In May 2013, key access ramps to and from the Brooklyn Bridge and the FDR Drive were expanded. Each of the two enhanced ramps now accommodates two traffic lanes and simplifies traffic patterns, easing notorious traffic bottlenecks for many of the 102,542 vehicles that cross the bridge daily as the bridge rehabilitation continues. The first ramp, connecting the exit from the bridge's Manhattan-bound lanes with the FDR Drive, was expanded from one to two lanes, easing backups that often extend across the bridge. The second ramp, connecting the southbound FDR Drive with the approach to the bridge's Brooklyn-bound lanes, was also expanded from one to two lanes, easing congestion and reducing the impact of cars that aggressively cut into the queue of cars at the entrance to the ramp. The work on a third ramp, connecting the bridge's Brooklyn-bound lanes to Cadman Plaza West and Old Fulton Street in Brooklyn Heights, which was also expanded to two travel lanes, was completed in September 2013.

Noise monitoring and mitigation efforts continue for all night-time project operations with ongoing community and sensitive receptor coordination.



April 2014: Installation of Temporary Deck Units at the York Street Structure Over Brooklyn-Queens Expressway. July 2013: Removal of the Existing Concrete Slab on the Eastbound Main Street Structure. August 2013: Ironworker Replacing Cable Clamp Assemblies on the Suspended Span. October 2013: Grid Deck Panel Installation at the Eastbound Park Row Structure.

## ACCOMPLISHMENTS & PLANNED PROJECTS

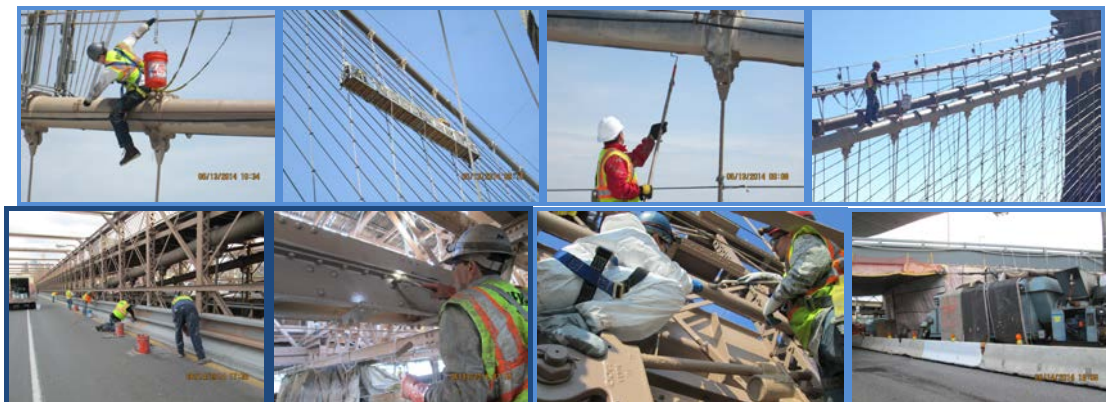


October 2013: Eastbound Brooklyn-Queens Expressway Traffic Flowing Under the Exposed Steel of the Eastbound York Street Structure. Removing the Fascia Steel From the Eastbound York Street Structure.  
November 2013: Concrete Placement at the Eastbound York Street Structure.

In 2014, lead-based paint removal and new coating applications were completed at the Manhattan ramps and approach structures. Subsequently, primary protective shield removal commenced at the Manhattan ramps and is in progress. Painting of the overhead struts and promenade approach railing was completed, while painting of the main cables and suspender cables continues and is at approximately 80% complete. Additionally, abrasive blast cleaning and painting have begun at the Brooklyn approach structures, with a portion of the Prospect Street structure completed.



Spring 2014: Painting at Main Bridge – Safety Barrier and Top Struts. Painting at Manhattan Ramps. April 2014: Containment at Manhattan Ramps and Approaches.



May 2014: Painting Main Cables and Suspension Ropes. June 2014: Painting at Main Bridge – Safety Barrier and Touchup. Containment at Ramp A, Span 4.



## ACCOMPLISHMENTS & PLANNED PROJECTS



August 2014: Main Bridge Touch-Up Painting, and Painting Manhattan Main Span Promenade Railing.  
August 2014: Painted Manhattan Ramps. October and November 2014: Blasting and Painting – Brooklyn Approach Structures.

In response to residents' concerns about airborne silica, a type of dust that is emitted during concrete demolition operations, the project team conducted a series of tests to monitor the levels of this substance in the air in January 2014. In addition to three types of silica, the tests also monitored for general respirable dust. Monitors were placed in four locations near concrete demolition operations occurring at the Main Street and York Street structures on the Brooklyn approach. Two monitors were placed within 50 feet of the construction activities themselves, one was placed at ground level north of the activity, and another placed directly in front of a residential building just south of the work. Analysis was undertaken by the project's environmental experts using procedures established by the Occupational Safety and Health Administration (OSHA) and the National Institute for Occupational Safety & Health (NIOSH). All results were well below the permissible exposure levels as established by the NYS Department of Labor Public Employee Safety and Health and threshold limit values established by the American Conference of Governmental Industrial Hygienists.



Respirable Dust & Airborne Silica Monitoring.

Significant portions of the structural rehabilitation of the bridge were completed during 2014. Orthotropic deck panels were installed at the inbound Franklin Square Structure, and are currently being aligned and welded in place. Replacement of the superstructure and installation of concrete-filled grid deck panels was completed for the inbound York Street and Main Street structures. New concrete-filled grid-deck panel installation was completed for the Sands Street structure in both directions and continues at the inbound Park Row structure. Approach SuperSlab installation continues at both inbound approaches, and is at approximately 60% complete. Asphalt paving and road striping has been completed at both outbound approaches and has commenced at the inbound Brooklyn approach (east of the Prospect Street structure). Bearing replacement continues at the Brooklyn approach structures, with 524 of 666 bearings replaced by the end of 2014. Several operations still remain in Manhattan: these include the remaining installation of super slabs on the Manhattan-bound roadway, grid deck installation at

## ACCOMPLISHMENTS & PLANNED PROJECTS

the Park Row structure, rehabilitation of the north cantilever, and pier replacement at Ramp C. The latter two operations may continue through the end of 2015.

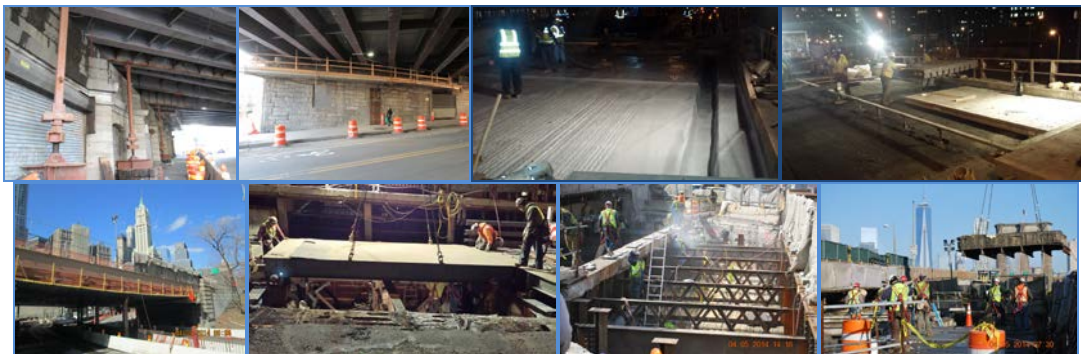
Beginning on March 26, 2015, and lasting through December, 2015 the Brooklyn Bridge promenade will be reduced in width for pedestrians and cyclists at various locations. This closure is necessary to perform steel improvements at tower locations as well as structural joint repair on the Brooklyn Approach. At the towers, the work zone will be in effect continuously during this period. On the Brooklyn Approach, work will be conducted only during overnight hours. Pedestrians and cyclists will be directed to cautiously share the narrowed pathway.



Structural repairs continue to be identified by biennial inspections and the construction consultants, and the repair work is ongoing. Over 3,900 incidental steel defects were identified that could not be anticipated prior to the removal of the existing paint. Approximately 1,000 of them have been corrected to date.



February 2014: Fascia Removal – Park Row Structure. Franklin Square Structure – Floorbeam Installation. York Street Structure – Demolition and Steel Removal. Main Street Structure – Cap Beam Installation.



February 2014: Prospect Street Structure – Temporary Steel Installation. April 2014: Superslab Installation – Manhattan-Bound Lanes. April 2014: Fascia Installation – Park Row Structure. Franklin Square Structure Deck Replacement During Full Weekend Closure. York Street Structure Deck Replacement During Full Weekend Closure.

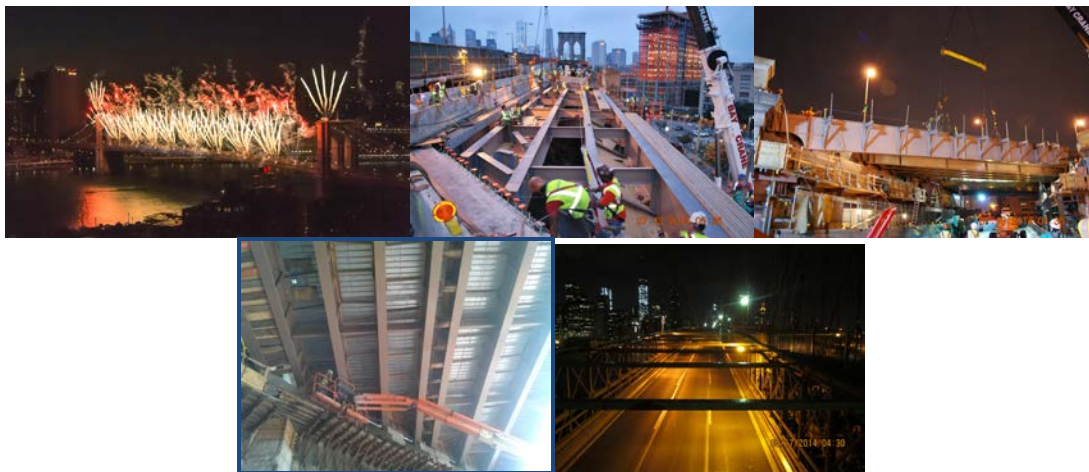
## ACCOMPLISHMENTS & PLANNED PROJECTS



April 2014: Main Street Structure – Cap Beam Concrete Placement. May 2014: North Cantilever Demolition. York Street Structure – East Abutment Cap Beam. May 2014: Main Street Structure – Abutment Concrete Placement. Protective Shield and Work Platform at Manhattan Ramps and Approaches.

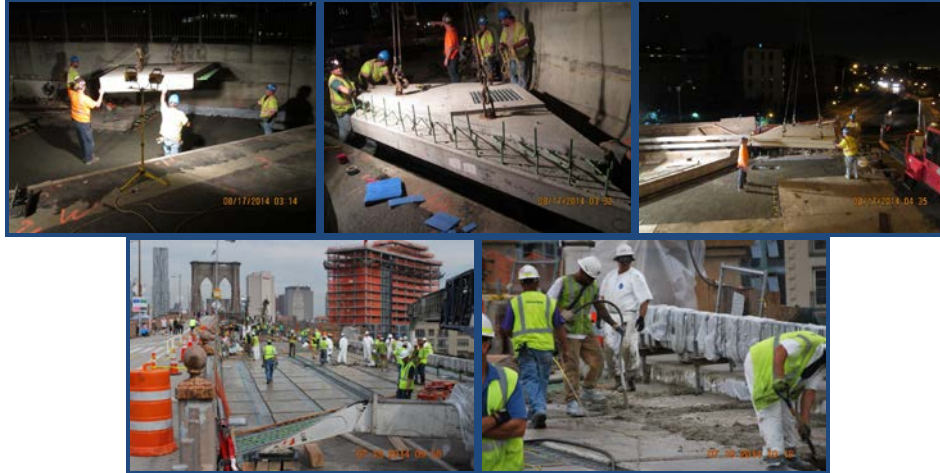


May 2014: Ascending the Cable. Installing Clamping Assemblies at the Franklin Square Structure. May 2014: Main Street Structure Westbound Overpass Replacement During Full Weekend Closure. June 2014: York Street Structure Stage II Westbound Overpass Replacement During the Full Weekend Closure.



July 2014: Fireworks. Installation of Manhattan-bound York Street Girder. Stringers Installed at Manhattan-bound York Street. Preparation for Closure Pour at Main Street Structure. Early Morning on the Bridge in August 2014.

## ACCOMPLISHMENTS & PLANNED PROJECTS

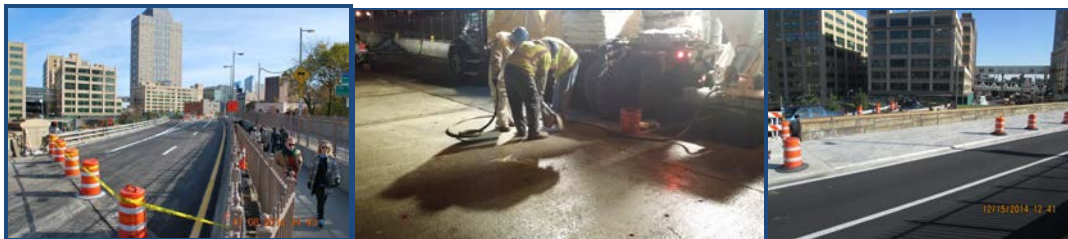


August 2014: York Street Structure – Installation of Brooklyn-Bound Approach Slabs. July 2014: Main Street Structure – Manhattan-Bound Closure Pour.

Substantial completion of the project is now expected at the end of 2015. Multiple unforeseen factors have served as major obstacles, including the discovery of additional deterioration of bridge elements, discovery of a former trolley structure thought to be removed over 50 years ago, the cancellation of full weekend closures due to additional citywide events, and the Superstorm Sandy construction embargo. There may be steel repair work that carries over into 2016 due to staging of the work over the river, as only one half of the channel can be closed.



September 2014: Franklin Square Structure – New Orthotropic Deck. October 2014: Contractor Setting Rebar for Cast-in-Place Curb at Manhattan-Bound Tillary Street Access Road/Sands Street Access Road. November 2014: Manhattan-Bound Brooklyn Approach Paving.



December 2014: Super Slab Installation in Manhattan-Bound Lanes. Sands Street Structure – Curb Mall.

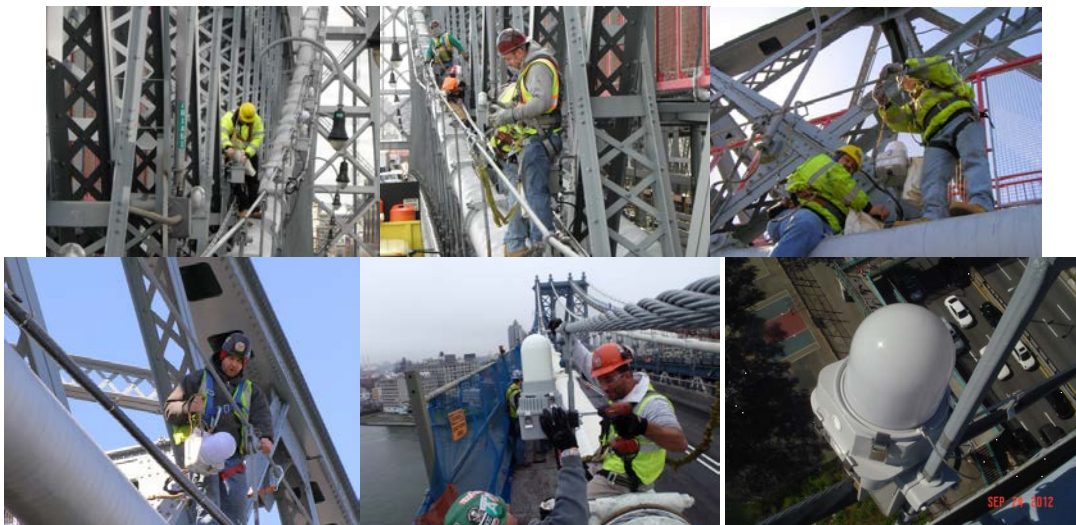
## ACCOMPLISHMENTS & PLANNED PROJECTS



September 2014: Acting Administrator of the Federal Highway Administration Gregory G. Nadeau, Deputy Commissioner for Finance, Contracting, and Program Management Joseph H. Jarrin, and Director of East River Bridges Hasan Ahmed Studying the Brooklyn Bridge Project Plans. Acting Administrator of the Federal Highway Administration Gregory G. Nadeau and Commissioner Polly Trottenberg on the Brooklyn Bridge.

### NECKLACE LIGHTS

In the fall of 2008, to compare options for energy efficiency, we replaced 20 100-watt mercury vapor lamps of the necklace lights on the Brooklyn and Manhattan Bridges with 10 LED fixtures and 10 induction fixtures. The test was completed in spring 2009; we chose an LED fixture in a dish style and will obtain them for the Ed Koch Queensboro, Williamsburg and Brooklyn Bridges. The test fixtures were removed on April 24, 2009. The replacement of the existing mercury vapor lights on the Williamsburg Bridge was completed in summer 2012. The replacement of those on the Ed Koch Queensboro and the Manhattan Bridges was completed in June 2013. The replacement of the Brooklyn Bridge necklace lights will not be scheduled until the completion of Contract #6. Approximately 80% of the old fixtures from the Ed Koch Queensboro and Williamsburg Bridges have been sold at auction.



Installing New LED Necklace Lights on the Williamsburg Bridge in April 2012: Electrician Thomas Cipriano, Supervisor Bridge Repairer and Riveter Gean Pilipiak (in Front). (Credit: Thomas Whitehouse) May 2012: Electricians Thomas Cipriano and Robert Stackpole on the Williamsburg Bridge. Bridge Repairer and Riveter Neil Dalton. (Credit: Hany Soliman). Installing New LED Necklace Lights Along D Cable on the Manhattan Bridge in May 2012. New LED Necklace Light on Cable D of Williamsburg Bridge. (Credit: NYSDOT)

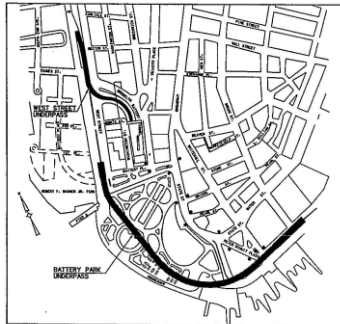
## ***ACCOMPLISHMENTS & PLANNED PROJECTS***

### ***Movable Bridges***

As NYCDOT completes reconstruction work on the East River Bridges, more attention is being devoted to other key City-owned bridges, such as the movable bridges. Building on the success of the East River Bridge projects, the Department is implementing many of the innovative concepts originated during the rehabilitation of East River Bridges on these other major reconstruction projects.

### **BATTERY PARK UNDERPASS AND WEST STREET UNDERPASS (MANHATTAN) – EMERGENCY CONTRACT**

The Battery Park Underpass is a two-span rigid frame reinforced concrete tunnel structure connecting eastbound and westbound traffic between the FDR Drive and West Street (Route 9A) at the southern end of Manhattan. The West Street Underpass is a one-span rigid frame reinforced concrete tunnel structure connecting southbound traffic from West Street heading toward the entrance to the Brooklyn Battery Tunnel (Hugh L. Carey Tunnel).



PROJECT LOCATION MAP  
Battery Park and West Street Underpasses.

On October 29, 2012, the New York Metropolitan area was impacted by Hurricane Sandy, causing flooding, loss of power and damage to many components of New York City's infrastructure. On October 30, 2012, a site inspection by the Department revealed major damage to both underpasses. Specifically, certain electrical, mechanical and structural issues with regard to the tunnels had to be addressed.

Salt water penetrated the electrical and mechanical equipment in both underpasses, including but not limited to, motors, lighting and pumps. It is therefore, necessary to solicit the services of a specialty contractor to perform all necessary repairs.

Due to the potentially serious danger to life and public safety posed by the current condition, it is critical that the repair work be performed as expeditiously as possible.

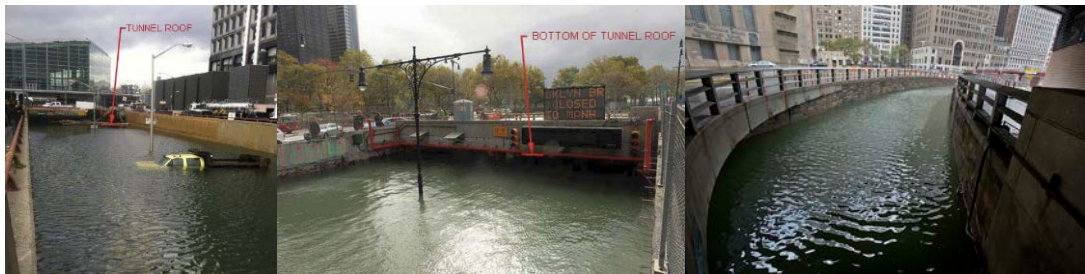
On November 7, 2012, in the interest of public safety, pursuant to Section 103(4) of the General Municipal Law and Section 315 of the New York City Charter, the Department declared that an emergency exists relative to the Battery Park Underpass and West Street Underpass on Route 9A in Manhattan.

A temporary repair of the Battery Park Underpass ventilation system which allowed normal traffic flow as opposed to single-lane traffic began in April 2013. A permanent repair of the systems in the underpass is expected to begin in early winter 2015 and to be complete in July 2017.

A Letter of Intent for the emergency repairs of these underpasses was issued to the contractor with a start date of February 17, 2015.

## ACCOMPLISHMENTS & PLANNED PROJECTS

A project to mitigate future flooding at both underpasses by adding protection measures for the repaired systems in the underpasses will be undertaken in a separate contract.



October 2012 - Battery Park Underpass - View Looking West at the South Portal Entrance Near the FDR Drive. View Looking South at the North Portal Entrance Near West Street. West Street Underpass – Approach at South Portal Looking Southeast. Both Tunnels Were Flooded to Their Roofs, Which Means That all Tunnel Ventilation, Electrical, and Mechanical Systems Were Entirely Submerged in Saltwater.



October 2013 – Battery Park Underpass – Elevation Right Span 1 and Left Span 1. (Credit: NYSDOT) September 2013 - Span 2 Looking Westbound (FDR Drive to West Street) West Street Underpass - Elevation Right Span. (Credit: NYSDOT) September 2014: Project Team in the Battery Park Underpass – Mechanical Engineer Bidyut Niyogi, Construction Project Manager Beatriz Duran, Project Manager Tamara Berlyavsky and Administrative Engineer Bhaskar Gusani.

**METROPOLITAN AVENUE BRIDGE OVER ENGLISH KILLS (BROOKLYN), GRAND STREET BRIDGE OVER NEWTOWN CREEK (BROOKLYN/QUEENS), GREENPOINT AVENUE BRIDGE OVER NEWTOWN CREEK (A.K.A. J. J. BYRNE MEMORIAL BRIDGE (BROOKLYN/QUEENS), PULASKI BRIDGE OVER NEWTOWN CREEK (BROOKLYN/QUEENS), BORDEN AVENUE BRIDGE OVER DUTCH KILLS (QUEENS), HUNTERS POINT AVENUE BRIDGE OVER DUTCH KILLS (QUEENS), UNION STREET BRIDGE OVER GOWANUS CANAL (BROOKLYN), CARROLL STREET BRIDGE OVER GOWANUS CANAL (BROOKLYN), THIRD STREET BRIDGE OVER GOWANUS CANAL (BROOKLYN), NINTH STREET BRIDGE OVER GOWANUS CANAL (BROOKLYN), THIRD AVENUE BRIDGE OVER HARLEM RIVER (BRONX/MANHATTAN), MADISON AVENUE BRIDGE OVER HARLEM RIVER (BRONX/MANHATTAN), 145<sup>TH</sup> STREET BRIDGE OVER HARLEM RIVER**

## ***ACCOMPLISHMENTS & PLANNED PROJECTS***

### **(BRONX/MANHATTAN), MACOMBS DAM BRIDGE OVER HARLEM RIVER (BRONX/MANHATTAN), AND WEST 207<sup>TH</sup> STREET/WEST FORDHAM ROAD BRIDGE OVER HARLEM RIVER (BRONX/MANHATTAN) (A.K.A. UNIVERSITY HEIGHTS BRIDGE) – EMERGENCY CONTRACT**

On October 29, 2012, the New York Metropolitan area was impacted by Hurricane Sandy, causing flooding, loss of power and damage to many components of New York City's infrastructure. On October 30, 2012, a site inspection by the Department revealed major damage to the operational portions of these bridges. Specifically, certain electrical and mechanical issues parts had to be repaired or replaced immediately.

Salt water penetrated the electrical and mechanical equipment in the bridges, including but not limited to, motors, electric relays, lock control devices, gates, pier lights, and pumps. It was therefore, necessary to solicit the services of a specialty contractor to perform all necessary repairs.

As the procurement proceeded, the groupings of bridges were changed. The Metropolitan Avenue Bridge was bid separately due to the number of openings. All of the other bridges were bid together.

The Metropolitan Avenue Bridge over the English Kills is located between Queens and Brooklyn and is a double-leaf trunnion bascule that carries four lanes of vehicular traffic and two sidewalks. The bridge opens approximately 450 to 500 times per year for marine traffic, primarily taking barges of fuel oil to a facility south of the bridge. The bridge was subject to heavy flooding.

The Grand Street Bridge over the Newtown Creek is located between Queens and Brooklyn and is a rim-bearing swing bridge that carries two lanes of vehicular traffic and two sidewalks. The bridge opens approximately 3 times per year. The bridge was subject to extreme surge tide.

The Greenpoint Avenue Bridge over Newtown Creek is located in Queens and is a double-leaf trunnion bascule that carries four lanes of vehicular traffic and two sidewalks. The bridge was subject to an extreme surge tide and minor repairs are necessary. The navigation lights on the fender system were flooded.

The Pulaski Bridge over Newtown Creek is located in Queens and is a double leaf trunnion bascule that carries four lanes of vehicular traffic and two sidewalks. The bridge was subject to heavy winds. Minor repairs are required to the warning gate arms damaged during storm.

The Borden Avenue Bridge over Newtown Creek is located in Queens and is a single-leaf retractile span that carries two lanes of vehicular traffic and two sidewalks. The bridge and its mechanical and electrical systems were subject to heavy flooding.

The Hunters Point Avenue Bridge over the Dutch Kills is located in Queens and is a single-leaf rolling bascule bridge that carries two lanes of vehicular traffic and two sidewalks. The bridge was subject to heavy flooding as well as high winds. The warning gate arm was damaged due to high winds.

The Union Street Bridge over the Gowanus Canal is located in Brooklyn and is a double leaf rolling bascule that carries two lanes of vehicular traffic and two sidewalks. The bridge opens approximately 36 times per year. The bridge was subject to heavy flooding.

The Carroll Street Bridge over the Gowanus Canal is located in Brooklyn and is a single-leaf retractile span that carries one lane of vehicular traffic and two sidewalks. The bridge opens approximately 95 times per year. The bridge and its mechanical and electrical systems were subject to heavy flooding which resulted in extensive damage.

The Third Street Bridge over the Gowanus Canal is located in Brooklyn and is a double-leaf rolling bascule that carries two lanes of vehicular traffic along with two sidewalks. The bridge and its mechanical and electrical systems were subject to heavy flooding.

The Ninth Street Bridge over Gowanus Canal is located in Brooklyn and is a tower-drive vertical lift bridge that carries four lanes of vehicular traffic and two sidewalks. The bridge opens



## ***ACCOMPLISHMENTS & PLANNED PROJECTS***

approximately 600 times per year. The bridge and portions of its mechanical and electrical systems were subject to minor flooding.

The Third Avenue Bridge over the Harlem River bridge is located between Manhattan and the Bronx and is a center-bearing swing bridge that carries four lanes of vehicular traffic and two sidewalks. The bridge opens approximately 4 times per year. The bridge was subject to flooding of the land on either side of bridge as well as the center pivot fender system.

The Madison Avenue Bridge over the Harlem River is located between Manhattan and the Bronx and is a rim-bearing swing bridge that carries four lanes of vehicular traffic and two sidewalks. The bridge opens approximately 6 times per year. The bridge was subject to flooding of the land on either side of bridge as well as the center pivot fender system.

The 145<sup>th</sup> Street Bridge over the Harlem River is located between Manhattan and the Bronx and is a rim-bearing swing bridge that carries four lanes of vehicular traffic and two sidewalks. The bridge opens approximately 6 times per year. The bridge center pivot pier was subject to an excessive high tide.

The Macombs Dam Bridge over the Harlem River is located between Manhattan and the Bronx and is a rim bearing swing bridge that carries four lanes of vehicular traffic and two sidewalks. The bridge opens approximately 20 times per year. The bridge was subject to an extreme surge tide, and the center pivot pier and fender were flooded.

The West 207<sup>th</sup> Street (University Heights) Bridge over the Harlem River is located between Manhattan and the Bronx and is a rim-bearing swing bridge that carries four lanes of vehicular traffic and two sidewalks. The bridge opens approximately 23 times per year. The bridge was subject to an extreme surge tide and the center pivot pier and fender were subject to flooding. The traffic signal assembly was subject to high winds and was damaged.

The level of repair varies from bridge to bridge. In general, the work entails the rehabilitation of the mechanical and electrical systems that are used to operate the movable spans, provide navigational lighting to guide mariners in the waterway and provide vehicular traffic control when a bridge opening is necessary.

Common to all the bridges will be the need for the maintenance and protection of traffic. This shall primarily consist of daily temporary lane or shoulder closures to allow contractor access to the bridge for material delivery and equipment usage. For the structures that have extensive damage to the electrical system, full roadway closures will be performed to allow the operating systems to be tested. This will be done at night and occur over a period of evenings. On bridges that have sidewalks, at least one walkway will be maintained through the contract.

Also common to all the bridges will be the local removal of hazardous or asbestos containing materials. Areas where suspect materials that may contain lead, PCB and/or asbestos have been identified based on visual inspection. Testing will be performed as part of the contract prior to the start of work to confirm their presence. This will include PCB caulking, lead paint and/or asbestos containing material in various components. If testing proves their presence exists, abatement will be done before repairs occur to the mechanical and electrical systems.

These bridges provide a necessary service in compliance with federal law which requires that the bridges be operational for marine traffic. It is critical that the repair work be performed as expeditiously as possible.

On November 20, 2012, in the interest of public safety, pursuant to Section 103(4) of the General Municipal Law and Section 315 of the New York City Charter, the Department declared that an emergency exists relative to these 15 movable bridges in the Bronx, Brooklyn, Manhattan, and Queens.

As of May 28, 2013, all Hurricane Sandy-related damages on the Pulaski Bridge and Greenpoint Avenue Bridge were repaired by the in-house bridge maintenance group. As such, these two bridges will now be eliminated from the first group of bridges, leaving only the Metropolitan Bridge in this category.

## ***ACCOMPLISHMENTS & PLANNED PROJECTS***

A Letter of Intent for the emergency repairs of the Metropolitan Avenue Bridge over English Kills (Brooklyn) was issued to the contractor with a start date of June 23, 2014.

The second group of bridges consists of Macombs Dam Bridge over Harlem River (Bronx/Manhattan), 145<sup>th</sup> Street Bridge over Harlem River (Bronx/Manhattan), Third Avenue Bridge over Harlem River (Bronx/Manhattan), Madison Avenue Bridge over Harlem River (Bronx/Manhattan), Hunters Point Avenue Bridge over Dutch Kills (Queens), Carroll Street Bridge over Gowanus Canal (Brooklyn), Ninth Street Bridge over Gowanus Canal (Brooklyn), Third Street Bridge over Gowanus Canal (Brooklyn), Union Street Bridge over Gowanus Canal (Brooklyn), West 207<sup>th</sup> Street/West Fordham Road Bridge over Harlem River (Bronx/Manhattan), Borden Avenue Bridge over Dutch Kills (Queens), and Grand Street Bridge over Newtown Creek (Brooklyn/Queens). A Letter of Intent for the emergency repairs of the second group of bridges was issued to the contractor with a start date of December 15, 2014..

As of the end of April 2015, all Hurricane Sandy-related damages on the Union Street and Third Street Bridges are expected to be repaired by the in-house bridge maintenance group. As such, contract work on these two bridges will be eliminated from the second group of bridges.

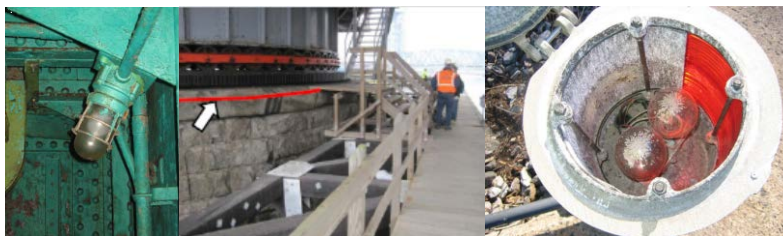
The project is being funded by the Federal Highway Administration (FHWA) and the Federal Emergency Management Agency (FEMA). The work on all twelve bridges will be performed under a single construction contract with an overall contract duration of 36 months.



Inspection in Late 2012: East End of the West 207<sup>th</sup> Street Bridge - Missing Traffic Signal was Knocked Down by the Hurricane Winds. Borden Avenue Bridge Operator's House Basement Level – Depicted Flood Line was Approximately 5 Feet Above the Floor. Third Street Bridge – Northwest Channel Light Missing. Ninth Street Bridge – Manually Pulling the Cable Reel Because the Motor Failed.



Inspection in Late 2012: Carroll Street Bridge - Navigational Fixtures on North Side of Span – Only the Center Span Fixture was Operational. Grand Street Bridge – Standing Water in the Access Light Fixture at the East Wedge Walkway. Typical impact damage to pier light.



Inspection in Late 2012: Grand Street Bridge – Standing Water in the Access Light Fixture at the East Wedge Walkway. Union Street Bridge – Standing Water in East Span Maintenance Light. Madison Avenue Bridge - General View of Fender and Center Pier—the Red Line Depicts the Approximate Water Level. Macombs Dam Bridge – Pier Lighting Fixture with Cover Removed – Silt Deposit on Lamp Tops, and Corrosion on the Fixture Frame.

## ***ACCOMPLISHMENTS & PLANNED PROJECTS***

### **BELT PARKWAY BRIDGE OVER MILL BASIN (BROOKLYN)**

Opened on June 29, 1940, the Mill Basin Bridge is adjacent to the Jamaica Bay Wildlife Refuge and the Gateway National Recreation Area. It is the only movable bridge on the Belt Parkway. The current clearance over Mean High Water is 35-feet. When the Mill Basin Bridge was constructed during the first half of the 20<sup>th</sup> century, New York City's inland waterways were among the most heavily navigated thoroughfares in the country. However, as maritime traffic in New York City steadily decreased since the mid-1960s, the need for movable bridges lessened as well. In 1941, during its first full year of operation, the Mill Basin Bridge was opened 3,100 times; by 1953, that figure decreased to 2,173; by 2014, the number of openings declined further to a total of only 210 openings.

In addition, significant and costly traffic congestion results from the operation of this outmoded drawbridge. In 2013, the Mill Basin Bridge carried 148,084 vehicles per day. The average opening and closing time for the bridge (and others like it) is ten minutes. Thus, this structure's operation has a negative and significant effect on the efficiency of New York City's vehicular traffic flow.

In 2014, on a New York State-mandated scale from 1 to 7, this bridge had a condition rating of 3.269, or "fair." While the bridge is not in any immediate danger of structural failure, its reconstruction is required in order to maintain mobility and public safety on this vital artery.

The existing Mill Basin Bridge is 864-feet long and 14 spans, including double movable leaf bascule spans and a steel superstructure, supported on reinforced concrete pier on timber piles, and abutments supported on pre-cast concrete piles. The existing structure and immediate approaches will be demolished and replaced.

The replacement will be a 2,645-foot long, 17 span, 60-foot high fixed bridge. It will consist of a steel composite superstructure and reinforced concrete substructure on piled footings, and will be constructed on a new alignment set on the north side of the existing bridge and partially overlapping with the existing bridge. The new bridge and approach will have three 12-foot wide traffic lanes, a 12-foot wide right shoulder on the bridge, a 10-foot wide right shoulder on the approaches, and a minimum left shoulder in each direction. The eastbound side will carry a dedicated pedestrian/bicycle path along the south fascia. The new bridge will be a fixed structure with a 60-foot vertical clearance over Mean High Water, obviating the need for opening and closing the structure to accommodate tall vessels. The new design of the bridge will result in increased sight distances, an increase in lane width from 11-feet 4-inches to 12-feet, and the inclusion of safety shoulders in both directions. The channel will remain navigable during construction, and the clear channel width will remain the same after the new structure is in place. A new fender system will be installed to protect the bridge substructure from marine traffic. The reconstruction of the Mill Basin Bridge (part of the second Belt Parkway Group) is scheduled to start in summer 2015, and to last approximately 4 years.

### **BROADWAY BRIDGE OVER THE HARLEM RIVER (BRONX/MANHATTAN)**

Broadway extends from the southern tip of Manhattan, through the Bronx and terminates in Westchester County. The Broadway Bridge, a lift type movable bridge crossing the Harlem River, is located between West 220<sup>th</sup> Street in Manhattan and West 225<sup>th</sup> Street in the Bronx. In 2013, the bridge carried 35,462 vehicles per day. Three tracks of the IRT subway are carried on its upper deck and a five-lane two-way roadway with sidewalks on either side is carried on its lower deck. The two roadways each measure 34 feet and the sidewalks are 7 feet wide.

The vertical lift bridge is the third movable steel structure at this location. The original steam powered single-deck swing span built in 1895 carried only highway and pedestrian traffic. The second structure was built in 1905 to accommodate the extension of IRT subway into the Bronx from Manhattan. The second bridge was again a double deck swing span to carry the subway

## ***ACCOMPLISHMENTS & PLANNED PROJECTS***

line on the upper deck and highway traffic on the lower deck. The current structure, a double deck vertical lift bridge to carry the subway and vehicular traffic, was built in 1960.



Broadway Bridge – West and East Elevations. (Credit: Bhaskar Gusani)

The bridge underwent a protective coating project to protect the steel components of the bridge against the effects of corrosion. This project was completed in October 2003 at a cost of approximately \$8.7 million.

The bridge also underwent a recent component rehabilitation, including miscellaneous steel repairs, grating replacement, sealing and waterproofing of its deck, repair of spalled concrete pavement, new expansion joints and new median barrier at an approximate cost of \$2.14 million. This project was completed in May 2004.

Currently in its final design phase, the reconstruction of the bridge is scheduled to start in July 2017. The project's scope of work includes a major rehabilitation of the roadway deck, superstructure steel and substructure elements of the vertical lift span, as well as the approach spans. It will also include the replacement and rehabilitation of the electrical and mechanical components of the vertical lift span, as well as replacement of the existing fender system with a new larger and stronger one. Construction is expected to be complete in July 2020.

### **BRUCKNER EXPRESSWAY (NB & SB SERVICE ROAD) OVER WESTCHESTER CREEK (UNIONPORT BRIDGE) (BRONX)**

A bridge has been located in this location since the late 19<sup>th</sup> century: the original swing-type bridge was built around 1872, replaced by a new double-leaf bascule bridge in 1918. The current double-leaf trunnion bascule bridge was built in 1953, and underwent major modifications in 1971, including the demolition of the north side of the bridge, to allow for the construction of the overhead Bruckner Expressway. The approach roadways, ramp structures, and south bascule span were altered accordingly to accommodate two way traffic.

The Unionport Bridge lies in the midst of the Bruckner Expressway (I-278) interchange which is comprised of the Bruckner Expressway (I-278), the Cross Bronx Expressway (I-95) and the Hutchinson River Parkway. Along with providing a connection to the Bruckner Interchange and Cross Bronx Expressway, the Unionport Bridge also connects the local streets including Brush Avenue, east of the bridge, and Zerega Avenue, west of the bridge. It is an important link between the Unionport section and Schuylerville sections of the Bronx. This 17-span structure (three waterway spans and fourteen concrete approach spans) carries five lanes of the Bruckner Boulevard Expressway service road traffic over Westchester Creek. This bridge opens for important fuel oil deliveries up to 300 times a year. The bascule span open deck grating and grating support channels were all replaced by Division staff during the late part of 1997 and early part of 1998. In 2013, the bridge carried 61,892 vehicles per day.

## ACCOMPLISHMENTS & PLANNED PROJECTS



Unionport Bridge in 1953 and 2009.



Existing Bridge - Looking North. Looking South.

The project is in its final design phase for the replacement of the existing bridge with a new wider bridge. The project's new scope of work includes: a complete replacement of the bascule, flanking, and approach substructures and superstructures, providing six 12-foot travel lanes with shoulders on both sides of the bridge; a new 12-foot bicycle/pedestrian path and a 8-foot sidewalk, separated from traffic with a barrier; replacement of the existing mechanical and electrical systems for the bascule span; reconstruction of the bridge operator and control houses, and replacement of the existing fender system, drainage system, street lighting, traffic signal facilities, and gates. Construction is anticipated to start in fall 2016.



Proposed Twin Single Leaf Bascule (Looking North). Proposed Control House.



Looking West – Towards Current And Proposed Bridge.

## ACCOMPLISHMENTS & PLANNED PROJECTS



Looking East – Towards Current And Proposed Bridge.

### MACOMBS DAM BRIDGE OVER THE HARLEM RIVER (BRONX/MANHATTAN)

The Macombs Dam Bridge, which has one of the longest swing spans in the world, was opened in 1895, and was designated a City landmark in 1992. The bridge and the West 155<sup>th</sup> Street Viaduct carry two lanes of traffic in each direction. In 2013, the bridge carried 38,930 vehicles per day. The \$145 million reconstruction of this landmark bridge, which was completed in May 2007, included the West 155<sup>th</sup> Street viaduct, the west approach plaza over the Harlem River Drive and Seventh Avenue, the swing span over the Harlem River, the deck and camelback trusses over Metro-North Railroad and Conrail, the Major Deegan interchange (consisting of the east approach and four ramps), and the Jerome Avenue viaduct. The rehabilitation work not only strengthened the structure, it returned the bridge's appearance to its turn of the century grandeur.

As part of this project, the historic John Hooper Fountain, which dates from 1894, was fully rehabilitated in 2000. After studying detailed old photographs, the globe and weather vane were recast and replicated. Cast aluminum was used with high impact glazing similar to the lanterns installed in Central Park in the 1980's. Just east of the fountain, a garden of rose bushes was added for the community's pleasure. Other additions included a new paved island, new curbs, and a steel fence. Bollards were installed at the western end of the island to protect the fountain from vehicular traffic.



Close-up of the 1894 Dedication Plaque. (Credit: Hani Faouri)  
Bridge With View of Yankee Stadium. West Approach to Bridge.

## ACCOMPLISHMENTS & PLANNED PROJECTS

A new project will rehabilitate the West 155<sup>th</sup> Street Viaduct and the fender system. The viaduct serves as the western approach to the bridge in Manhattan and provides connections to West 155<sup>th</sup> Street, Macombs Place, and Adam Clayton Powell Jr. Boulevard. The scope of work includes replacement of columns, floorbeams, girder ends, bearings, expansion deck joints above floorbeams, cross frames and lateral bracings, and the ornamental brackets. The existing swing span fender is misaligned with the swing span in open position, and the timber cribbing is under attack by marine borers which could lead to the failure of the timber cribbing and the collapse of the stone fill. The project's scope of work includes installing formwork around the perimeter of the existing fender, filling the voids in the fender sand-cement grout, bonding the existing timber and rock into one solid mass, and constructing a fender extension on the northeast corner. In addition, in connection with the fender repair, the work activities will include removal of debris located on the river bottom in the channels adjacent to the swing spans. The debris piles pose potential hazards to navigation. The rehabilitation project is currently scheduled to start in summer 2015 and end in fall 2017.



Aerial View. West 155<sup>th</sup> Street Viaduct. The Timber Fender.

### MADISON AVENUE BRIDGE OVER HARLEM RIVER (BRONX/MANHATTAN)

A project for electrical, mechanical, and miscellaneous operating system-related work is scheduled to be performed between March 2017 and September 2018. The bridge is currently operating with the very old machinery components, along with a temporary electrical system known as the "Interim Drive System" installed during the 1994 rehabilitation contract. Some of the machinery components currently in service are over 100 years old and have far exceeded their service life. Moreover, the bridge does not have any back-up operating system which renders the bridge inoperable in case of failure of any component of the Interim Drive System. The preliminary design phase of this project began in early 2011. In 2013, the bridge carried 47,046 vehicles per day.

## ACCOMPLISHMENTS & PLANNED PROJECTS



Madison Avenue Bridge Sign in 2007. (Credit: Duane Bailey-Castro) Bridge in 2009. (Credit: Bernard Ente) General View of Truss Swinging in 2010 and Right Elevation of Span 15 in 2012. (Credit: NYSDOT)

### PARK AVENUE TUNNEL OVER 34<sup>TH</sup> STREET (MANHATTAN)

The Park Avenue Tunnel was originally built as an open cut in 1836 to accommodate horse drawn trolley cars between East 33<sup>rd</sup> Street and East 42<sup>nd</sup> Street. In 1854, a five course brick arch roof was constructed and the underground tunnel was used by the New York and Harlem River Railroad steam engine trains from East 42<sup>nd</sup> Street to its terminal then located at East 30<sup>th</sup> Street and Park Avenue. In 1870 the rail road was converted to electric powered trolleys.

The tunnel in its present form was converted to vehicular traffic only in 1917, when trolley tracks were covered with fill and roadway pavement was built. In its present form, the tunnel is located under the center mall of Park Avenue South. The roadway width inside the tunnel varies from 19'-2" to 22'-5" and used to carry a single lane of traffic in each direction. On August 3, 2008, the traffic in the tunnel was restricted to only a single northbound lane.

Some rehabilitation work was completed on the tunnel in November 2005. That contract included the rehabilitation of the fans and the ventilation system. The new project is currently in its final engineering design phase. The scope of work includes complete rehabilitation of civil and structural components of the tunnel. It will also include safety improvements at the East 33<sup>rd</sup>, 34<sup>th</sup>, and 39<sup>th</sup> Street intersections. Construction is expected to start in May 2016 and be complete in May 2018.



## ACCOMPLISHMENTS & PLANNED PROJECTS



Two Views of Park Avenue Tunnel in 2010. Abutment Beginning. Underside of South Arch. (Credit: NYSDOT)

### SHORE ROAD BRIDGE OVER THE HUTCHINSON RIVER (BRONX)

This bridge, built in 1908, was originally called the Pelham Parkway Bridge over Eastchester Bay. The existing bridge consists of a double leaf, rolling lift bascule span, flanked on each end by three earth filled concrete spandrel arch approach spans. The bridge is 864 feet in length. It carries two traffic lanes in each direction, and a sidewalk on its south side. The existing bascule leaves at mid-span consist of steel grating deck which is concrete filled over the machinery portion of the structure. In 2013, the bridge carried 18,330 vehicles per day. The \$5 million interim rehabilitation of the existing bridge superstructure and substructure enables the Department to keep it operational while a new bridge is being designed and built adjacent to the existing bridge. The existing bridge will be demolished once the new bridge is in service. The rehabilitation project began in April 2001, and all traffic lanes were reopened to traffic on April 24, 2002, three days earlier than scheduled. The interim rehabilitation of this bridge was substantially completed on June 17, 2002.

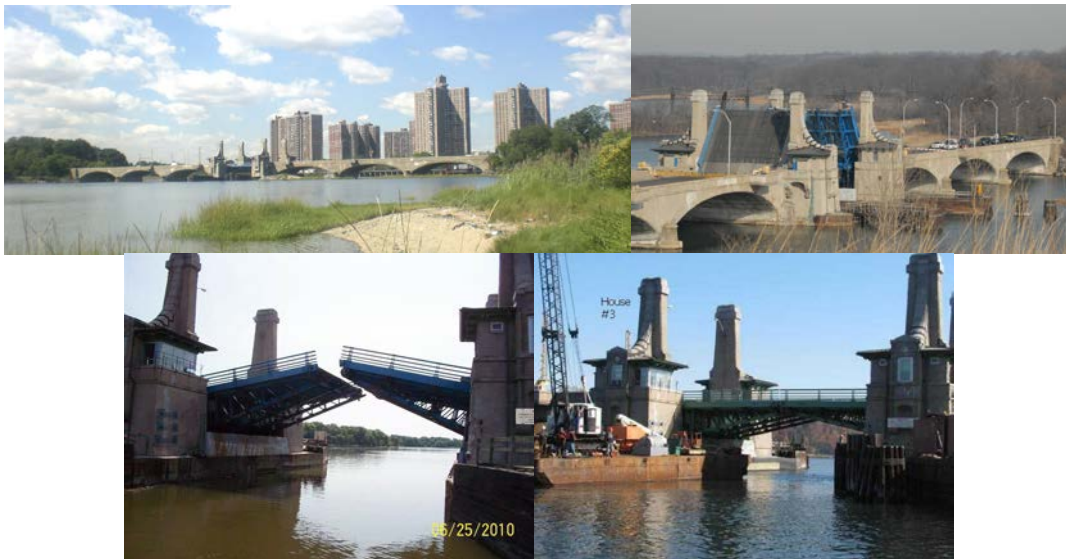


Shore Bridge in 2007. (Credit: Peter Basich)

A new mid-level movable bridge will be designed. It will be constructed on an offline alignment parallel to the existing bridge, with a wider navigation channel, and incorporate a raised profile to effectively increase the vertical clearance above the navigation channel of the main span. In its closed position, the main span will have a vertical clearance above mean high water of

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approximately 35 feet. This clearance will accommodate 83% of marine vessels passing beneath. For taller vessels, the bridge will be drawn to its open position providing the required vertical clearance. With a longer main span than the existing structure, the mid-level bridge will offer a widened navigation channel as well as improved lateral clearance to the structure. These improvements are expected to lessen the likelihood of vessel damage to the fender system and the substructure when compared to the existing structure configuration. The increased vertical clearance above the navigation channel would also reduce wear on the bridge's mechanical and electrical components by decreasing the frequency of bascule openings and closings. The scope of work will include a complete replacement of the bascule, flanking and approach spans (superstructures and substructures) with a new widened structure that provides two lanes and standard shoulders in each direction, and a dedicated bike path and pedestrian path. There will be a new control house, new utilities, new machinery and electrical system, new fender system and dolphins, and new street lighting. The new design consultant, upon its procurement, will perform the required Environmental Study as required under NEPA. Construction of the proposed bridge is expected to begin in 2020, with the new bridge open to traffic in late 2025.



Open Bridge in 2007. (Open Credit: Peter Basich) Bridge Closing in 2010. (Credit: NYSDOT) General View of Bridge Operator House #3 in 2011.

### UNION STREET BRIDGE OVER GOWANUS CANAL (BROOKLYN)

The original Union Street Bridge over the Gowanus Canal was constructed in 1870 as part of the construction of Prospect Park. A major crossing over the Gowanus Canal, this bridge is the last in a series of five eastbound crossings, and it is 885 feet from the canal's end. The neighborhood, located in the Gowanus section of Brooklyn, is primarily industrial; however, public facilities such as schools, parks, and public transportation are nearby.

In its current configuration, the bridge is a double-leaf Scherzer type (rolling lift) bascule bridge, which was opened in 1905. The bridge carries two lanes of eastbound traffic, a delineated bike lane and a sidewalk.

During the preliminary design, eight alternatives were identified for the rehabilitation of the bridge. The recommended design alternative proposes a replacement of the entire bridge structure with a new single leaf fixed trunnion bascule bridge on a reinforced concrete substructure and new pile foundation. Preliminary plans have been developed. However, during the Value Engineering study in 2009, the team recommended converting the movable span into a low level fixed bridge. OMB in consultation with the Law Department has prepared a draft Legal Agreement "Declaration of Restrictive Covenant" – which includes milestone payments for deed restrictions for the

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abutting property owners. In the meantime, preliminary plans and final plans will be prepared for interim structural rehab of the bridge. The construction is anticipated to begin around April 2019.



Aerial View of Union Street Bridge. Bridge in 2010. (Credit: NYSDOT)



Union Street Bridge - Schoolchildren Crossing in 2012. (Credit: NYSDOT) 2014: Eleven Steel Plates Covering the Steel Grid Deck.

### WILLIS AVENUE BRIDGE OVER THE HARLEM RIVER (BRONX/MANHATTAN)

Measuring 3,212 feet in length and opened to traffic on August 23, 1901, the old Willis Avenue Bridge was one of New York City's most heavily traveled bridges. The bridge was a bowstring truss swing bridge which spanned the Harlem River, and connected Manhattan's First Avenue and 125<sup>th</sup> Street to Willis Avenue and Bruckner Boulevard in the Bronx. Engineered by Thomas C. Clarke, the bridge was designed to relieve traffic congestion on the Third Avenue Bridge.

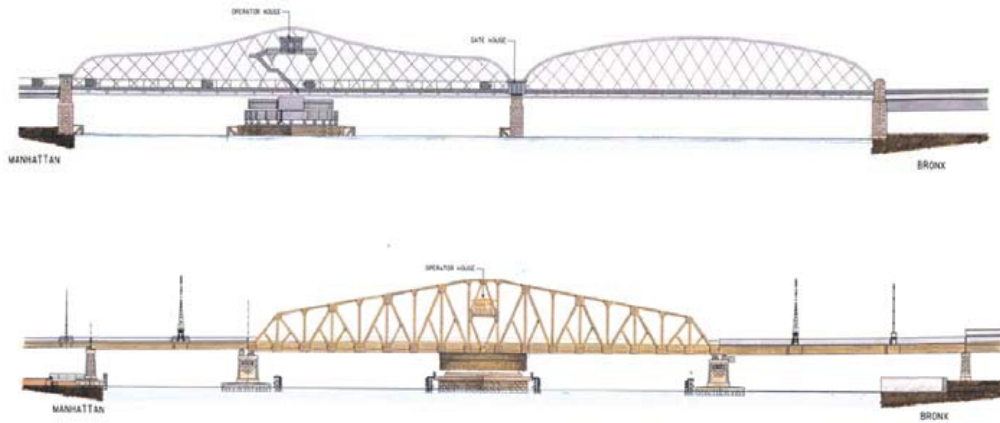
A major hub between the FDR Drive in Manhattan, the Major Deegan Expressway and the Bruckner Boulevard in the Bronx, the Willis Avenue Bridge carried approximately 65,216 vehicles per day in 2013. Ten local and interstate bus lines use the bridge as a principal route from New York City to points throughout the northeastern United States.

Because of substandard curves that were present on the structure's approaches, the Willis Avenue Bridge was one of the City's most accident-prone crossings. Between 1992 and 1994, there were 809 vehicular accidents on the bridge, for an average of 269 per year.

Because of the advanced age and condition of the Willis Avenue Bridge, the City of New York decided to replace the existing bowstring truss swing bridge with a new swing span bridge constructed just to the south of the existing bridge. The project also replaced the FDR Drive approach ramp and the ramp onto Bruckner Boulevard, and improved the alignment. NYCDOT will also reconstruct Willis Avenue over the Major Deegan Expressway for the New York State Department of Transportation. It also included a direct connection to the northbound Major Deegan Expressway in the Bronx with wider travel lanes and shoulders, and a broader, combined pedestrian/bicycle pathway along the north side of the bridge.

The old swing bridge, which opened for tall vessels, had a vertical clearance of 24 feet above Mean High Water Level (MHWL) when closed. The new swing bridge when closed has a 25 foot clearance above the Mean High Water Line which makes it consistent with other bridges along the river. It also incorporated the placement of a solid riding surface on the swing span instead of the existing open grating deck. In addition, modern electrical, mechanical and communications systems are being installed.

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Old and New Willis Avenue Bridge Span.

A Notice to Proceed for the replacement of this bridge was issued to the contractor with a start date of August 27, 2007. Foundation construction work was in progress by the end of 2007.

Traffic continued to use the current bridge until the new bridge opened, resulting in limited impact to motorists and nearby communities. The NYC Marathon was not impacted: runners continued to use the old bridge each year until the new swing span was completed.

Throughout the project, little impact to marine traffic was experienced. The new swing span was fabricated and assembled off site, and floated into place once the foundations, center pier and rest piers were ready to receive it.

On January 3, 2008, the East 125<sup>th</sup> Street exit ramp off the northbound FDR Drive was closed. This closure was necessary so that work on the construction of a temporary loop ramp, as well as construction of the new north-bound FDR Drive ramp to the Willis Avenue Bridge, could begin. The East 125<sup>th</sup> Street exit ramp, which typically carries only a low volume of traffic, was reopened after its reconstruction in June 2012.

In 2008, the project focused on foundation construction work, along with construction of a temporary ramp from the north-bound FDR Drive onto the bridge. At the end of 2008 the loop ramp was nearing completion. It went into service on January 24, 2009. This allowed the removal of the existing ramp and the construction of the new ramp to proceed. One half of the foundations for the new FDR Ramp were installed. Additionally one of the four piers in the river was in place, and work on a second had begun. The foundations in the Harlem River Rail Yard were more than 50 percent complete, and work had begun on the footings for the new Bruckner Boulevard Ramp.

In 2009, the project continued to focus on foundation construction work, with the installation of footings and piers for the new ramp from the FDR Drive as well as the one-half of the 1<sup>st</sup> Avenue Approach. The precast concrete pier box for River Pier 5 was transported in February 2009 by oceangoing tug and barge from the fabrication yard in Virginia to the contractor's yard in Jersey City, New Jersey. Over 30 automobiles were removed from the Manhattan channel in spring 2009. At the end of 2009 the contractor began the installation of the steel superstructure over the FDR Drive. The work in the river consisted of the installation of the drilled shafts for the four river piers and the installation of three of the four precast pier boxes in the river. The assembly of the new swing span began in Coeymans, near Albany, New York in June 2009.

In the Bronx, a temporary pedestrian bridge was installed in May 2009 over the Major Deegan Expressway, just south of the existing bridge, to carry pedestrians until the new bridge is constructed. More than half of the paving and drainage work on the expressway was completed. One-half of the bridge over the Major Deegan was removed and work on the new abutment wall began. One-half of the abutment at Bruckner Boulevard was reconstructed and the piers to carry

## ***ACCOMPLISHMENTS & PLANNED PROJECTS***

the south half of the new bridge were installed. The foundations in the Harlem River Rail Yard were completed and the first phase of the new Bruckner Boulevard exit ramp was also completed.

The contractor began 2010 with construction of the FDR Drive entrance ramp, and the First Avenue Approach on the Manhattan side of the bridge. On the Bronx side, the new Bruckner Boulevard exit ramp was partially opened to traffic on February 12, 2010. The work then proceeded with the demolition of the existing ramp. Assembly of the new swing span along with new machinery and electrical system was continued.

The swing span was floated down the river and towed to the bridge site on July 26, 2010. The new swing span was floated on to the new pier on August 9, 2010.



Voyage up the East River on July 26, 2010. New Willis Avenue Bridge Span Passing Under the Brooklyn Bridge. (Credit: Douglas Reese)

Work continued on the new bridge span in August 2010 with the placement of a new lightweight concrete deck surface, bridge machinery and electrical utility work. Demolition of the existing Willis Avenue Overpass over the Major Deegan Expressway was completed by September 2010.

On October 2, 2010, with the completion of the FDR Drive approach, partial First Avenue Approach, and the Willis Approach in Bronx, traffic was allowed over the new swing span and the existing bridge was closed to traffic. The old bridge was retired after 109 years of service.



New and Old Willis Avenue Bridges on October 2, 2010. Old Willis Avenue Spans in December 2010. (Credit: Duane Bailey-Castro) Aerial View in September 2011. (Credit: Hardesty and Hanover)

The float-out of the old existing swing span took place on October 21, 2010, and the adjacent, flanking bow-string arch span was floated out on November 3, 2010. Both spans remained on site through November for the asbestos abatement process before being floated to the contractor yard in Jersey City. The first bridge test operation of the new swing span was conducted successfully during the early morning hours of December 23, 2010.

In 2011, the contractor completed work on the existing swing and flanking spans and towed them to the recycling facility in New Jersey. In Manhattan, work continued on the remaining half of the First Avenue approach roadway and spans, the demolition of the temporary loop ramp, and the reconstruction of the 125<sup>th</sup> Street exit and local streets. In the last quarter of 2011, work also continued on the Manhattan ramp and stairs and the auxiliary bridge operator's house.

In the river, the contractor started removal of the river piers and continues work to complete the demolition of center pier and the west rest pier by blasting. They also worked on the installation of the fender system for the new piers as well as the final alignment of the bridge machinery and

## ***ACCOMPLISHMENTS & PLANNED PROJECTS***

testing of the electrical and mechanical system. In the last quarter of 2011, the contractor completed demolition work at pier 10 and carried out blasting of pier 9. Post-blasting excavation continued at Pier 9 for removal of the pier, and fender building work continued in the river. Work also continued for the construction of bridge machinery and testing of the electrical and mechanical systems. Installation of granite continued throughout the project.

In the Bronx, the contractor continued work on the relieving platforms, construction of the remaining superstructure and decks for the spans over the Harlem River Yard and mainline. They also worked on the construction of combined pedestrian/bicycle bridge over the Major Deegan Expressway as well as the new direct ramp to the northbound Major Deegan Expressway.

2012 started with the opening of the ramp to the northbound Major Deegan Expressway as well as the complete opening of the Bruckner Ramp and Bruckner Boulevard. Ramp C, which provides a direct connection to the Major Deegan Expressway, was opened on January 10. The contractor opened the sidewalk to the North Access Road on January 30. Most of the landscaping was done in the spring with some minor work left for the fall. Reconstruction of the 125<sup>th</sup> Street exit ramp and the 127<sup>th</sup> Street work was completed and opened to traffic. In the river, fenders for the new piers were completed and testing of electrical, machinery and control system continued. Reconstruction of Willis Avenue between 132<sup>nd</sup> Street and Bruckner Boulevard was completed and was opened to traffic on September 24, 2012.

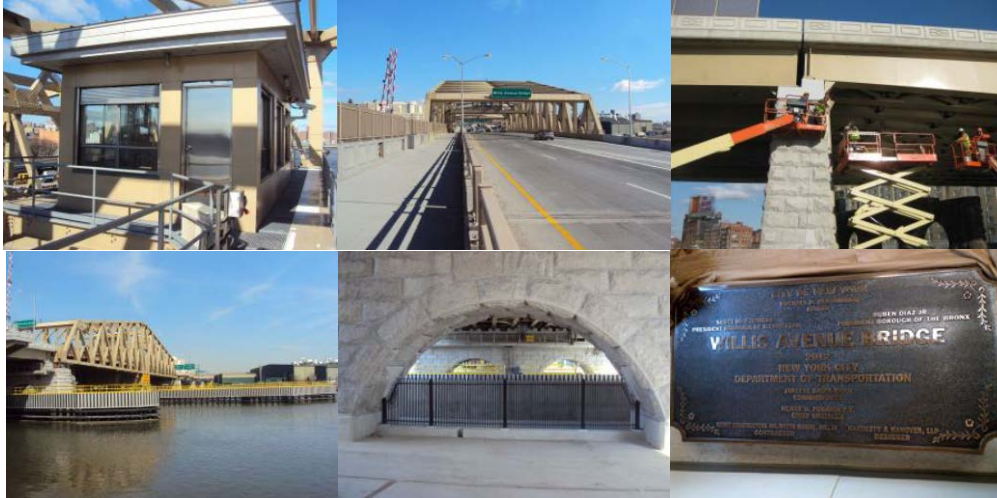
Architectural work at the bridge operator house is near completion. By October 2012, all of the traffic lanes and shoulders throughout the project were completed with final pavement markings. The pedestrian bridge over the Major Deegan Expressway and the adjacent walkway/bikeway were opened to the public on November 1, 2012.



September 2012: Bridge Fender North Elevation Looking South. Bridge South Elevation Looking North.  
Pier 6 South Fender Looking South.

In 2013, the contractor completed granite masonry work in the Bronx, architectural work at the bridge, and landscaping, and began testing of the bridge's electrical and mechanical systems. In addition, all construction work on the Manhattan Ramp and stairs connecting to the waterfront area below was substantially completed in 2013, however, these structures will not be opened to the public until the waterfront area is developed for public use.

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February 2013: Bridge Operator House. General View Taken From the West Side – Looking East. Pier 11- Continued installation of granite stone retrofit anchors. March 2013: Fenders of the River Piers. Pier 4 Picket Fence. Willis Avenue Bridge Plaque.

In 2014, the contractor continued working on the operating system of the new swing span, and successfully completed 150 test openings (5 openings per night for 30 days) in the Fall. The project is slated for substantial completion in late spring 2015.



Willis Avenue Bridge in 2014.

### WILLIS AVENUE GRANITE IN PUBLIC PLAZAS

New York City has a program to encourage public plazas in neighborhoods lacking in open space. The program plays a key role in ensuring that all New Yorkers live within a 10-minute walk of quality open space, as proposed in the PlaNYC 2030. Public plazas improve the quality of life and transform the cityscape by providing spaces where people can sit, socialize, and enjoy public life. During the reconstruction of the Willis Avenue Bridge, more than 7,500 square yards of granite (approximately 5,000 blocks) were removed from the site, mostly excavated from the bridge piers, abutments and gate houses both in Manhattan and the Bronx. These granite slabs have been repurposed as seating in several of the plazas.

In 2014, the slabs were added to the Morrison Avenue Plaza in Soundview and the Douglaston Station Plaza in Queens.

## *ACCOMPLISHMENTS & PLANNED PROJECTS*



Douglaston Station Plaza.



# ACCOMPLISHMENTS & PLANNED PROJECTS

## Roadway Bridges

### INNOVATIONS

Innovations in the design and construction of Roadway Bridges continued in 2014. Where feasible, the continued use of accelerated bridge construction methods helped reduce construction duration and the resulting negative impacts on the traveling public. In addition, the use of Best Management Practices (BMP) in all applicable projects, most notably in stormwater drainage design, will mitigate the impact of bridge projects on the surrounding environment.

### BROOKLYN AND MANHATTAN BRIDGES

#### ATLANTIC AVENUE BRIDGE OVER LIRR – ATLANTIC BRANCH (BROOKLYN)

The Atlantic Avenue Bridge is a 75 span viaduct located between Eastern Parkway and Georgia Avenue in Brooklyn. The bridge carries two traffic lanes each eastbound and westbound, divided by a center median. Two LIRR tracks (of the Atlantic Branch) run under and parallel to the bridge for its entire length. The bridge was built in 1942 by the Transit Commission. The bridge superstructure consists of steel stringers and floor beams. The substructure consists of steel piers and concrete bearing walls founded on spread footings. The Agency replaced the structural deck in 1985 with a new concrete deck slab overlay. Other work completed at that time included steel repairs (column and beam reinforcement), interior and exterior bridge wall repairs, and new drainage scuppers and piping to the service road street level. Between 1999 and 2002, the paint on the structural steel was removed and a spot prime and two paint coats were applied. There are no sidewalks on the bridge. The project will include rehabilitating the deteriorated steel members, concrete abutments and bearing walls; replacing the bridge wearing surface, drainage scuppers, and expansion joints; performing localized concrete deck repairs; and retrofitting the viaduct to meet current seismic requirements. In addition, the action includes the rehabilitation or replacement of the end approach slab and travel lane approach pavement milling and resurfacing as necessary, milling and resurfacing of the adjacent Atlantic Avenue service roads, concrete barrier end terminal improvements, roadway and under bridge lighting repairs, the removal of graffiti, and new reflectorized pavement markings. Construction is expected to begin in early 2017.



Aerial View in 2009. Beginning and End Approaches. Elevation Right – Spans 43 – 44. Elevation Left Spans 38 -43 and Elevation Right Spans 20 – 34. (Credit: NYSDOT) Span 43 South Arch Shows Typical Efflorescence at Mortar Joints of Ring Stones.

## ACCOMPLISHMENTS & PLANNED PROJECTS

### BELT PARKWAY BRIDGES OVER PAERDEGAT BASIN, FRESH CREEK, ROCKAWAY PARKWAY, GERRITSEN INLET, MILL BASIN, BAY RIDGE AVENUE, AND NOSTRAND AVENUE (BROOKLYN)

The newly constructed Paerdegat Basin Bridges and the reconstructed Fresh Creek and Rockaway Parkway Bridges are now rated “very good.” On a New York State-mandated scale from 1 to 7, the remaining four of the seven bridges possess a condition rating of “fair” (3.001 – 4.999). In 2014, the Gerritsen Inlet Bridge was 3.418; the Mill Basin Bridge was 3.269; the Bay Ridge Avenue Bridge was 3.625; and the Nostrand Avenue Bridge was 4.264. All are original structures, which were built beginning in 1939. While none of the bridges are in any immediate danger of structural failure, their reconstruction is required in order to maintain mobility and public safety on this vital artery.



The Seven Belt Parkway Bridges.

Reconstruction of the seven bridges and their approaches on the Belt Parkway (over three local streets and four waterways) began in the fall of 2009. Group 1 (Paerdegat Basin, Fresh Creek, and Rockaway Parkway Bridges) were substantially completed in August 2013. Gerritsen Inlet Bridge started in February 2013 and is expected to be complete in summer 2017. Mill Basin Bridge is expected to start in summer 2015, and to be complete in winter 2021. Bay Ridge Avenue Bridge started in November 2013 and is expected to be complete in fall 2015. Nostrand Avenue Bridge is expected to start in Fiscal Year 2022.

During the past 75 years, traffic demand along the Belt Parkway corridor has increased dramatically. The opening of New York International Airport (now JFK Airport) in 1948, the development of suburban communities on Long Island post World War II, and the opening of the Verrazano-Narrows Bridge in 1964 have dramatically increased demand on the Belt Parkway. When the parkway first opened the two-way average daily traffic was about 20,000 vehicles per day. Presently it is about 150,000 vehicles per day.

Reconstruction of these bridges and their approach roadways is necessary to alleviate substandard conditions and bring these areas into compliance with current state and federal standards. These standards require wider lanes, safety shoulders, concrete median barriers, super-elevation of the roadway around curves, and realignment of the approach roadways to improve sight distances. The Department anticipates that these improvements will reduce the current accident rate on this section of the Belt Parkway by approximately 45%.

NYCDOT conducted research to provide recommendations and design guidelines for the treatment of the parkway corridor. The goals of the analysis were threefold: first, to propose improvements to the parkway to satisfy safety and accessibility standards; second, to preserve and re-establish the historic character of the parkway; and third, to retain and improve public access for all parkway users. The recommendations also include complementary designs of the seven bridges.

On July 18, 2006, the Art Commission (now known as the Public Design Commission) selected the Seven Belt Parkway Bridge reconstruction project for a Design Award in its 24<sup>th</sup> annual Excellence in Design Awards.

All of the bridges, except for the Bay Ridge Avenue and Nostrand Avenue Bridges, are located

## ***ACCOMPLISHMENTS & PLANNED PROJECTS***

adjacent to the Gateway National Recreation Area, (GNRA) a division of the National Park Service. This bridge and highway program is in full compliance with New York City Department of Environmental Protection requirements for the initiation of a long-term plan that will increase wetlands, decrease pollution into the bay, and decrease the highway's footprint around the rim of Jamaica Bay. NYCDOT is also working closely with New York City Department of Parks and Recreation, the New York State Department of Environmental Conservation, Gateway National Recreation Area, the US Coast Guard, and the US Army Corps of Engineers to ensure compliance with all environmental protocols.

An upland mitigation project, to be administered by the New York City Department of Parks and Recreation, will include the planting of replacement trees to offset the number of trees being removed during the course of the bridge replacement project. The number of trees that will be planted will be determined in accordance with the caliper rule for tree replacement.

In addition to mitigating environmental impacts along the Belt Parkway corridor, an off-site Tidal Wetland Mitigation project was performed. A Notice to Proceed was issued to the contractor with a start date of March 8, 2011. The plan focused on compensating for wetland losses at the waterway bridges by increasing and improving the quality of habitats at a nearby location. Approximately 2.3 acres of land at Floyd Bennett Field was cleaned of rubbish and debris and converted to tidal wetland area. The project was substantially completed during 2012.

The overall goal of the mitigation project was to restore selected areas of the Floyd Bennett shoreline with productive habitats, including unvegetated intertidal areas, vegetated intertidal areas restored with naturally occurring *Spartina* marsh, and high marsh habitats. A significant portion of the area involved the removal of approximately 20,000 cubic yards of previously filled areas and the restoration of the areas to productive vegetated and unvegetated wetland resources.

Restoration of the area, specifically, the removal of existing fill and debris from the Floyd Bennett Field Mitigation site has increased the functional value of the area. This area is an important contributor to primary production and breakdown of organic materials. In addition, algal communities often found in these areas are producers, and provide a food source for snails and other benthic organisms, which in turn, provide food sources for larger animals that forage along the shorelines of Jamaica Bay.

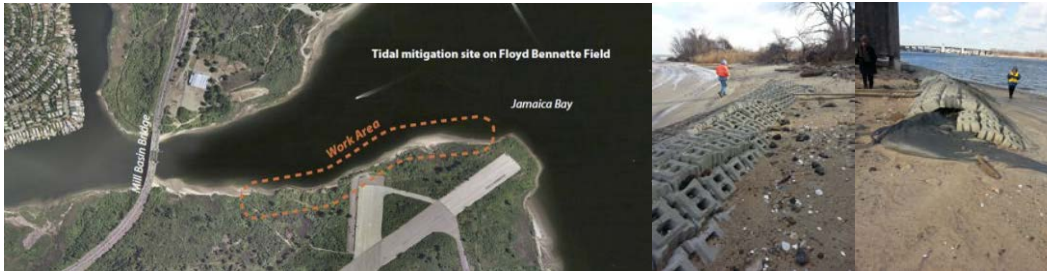
Planting at the intertidal wetland and the high marsh zones was completed in summer 2011. The installation of cabled concrete erosion control revetment was started in June 2011 and completed in July 2011. In fall 2012, all replacement and final upland tree plantings were completed. Monitoring of the wetland mitigation project, as mandated by the New York State Department of Environmental Conservation, is expected to be complete in early 2017.

On October 29, 2012, Hurricane Sandy impacted the east coast and caused major damage. A survey after the storm discovered severe plant and revetment damage at the contract site. The established site grades were overwhelmed by the storm surge, ground protection and slope stabilization measures were displaced, and the plantings were uprooted and washed away. The National Park Service put the worksite off limits while Hurricane Sandy cleanup operations were in progress. A site inspection was held in the winter of 2013, and again in the summer of 2014. The contractor was asked to furnish a cost proposal to restore the plantings within the site. It is anticipated that approximately 22,000 intertidal wetland plants (*Spartina Alterniflora*) will be re-established during the spring 2015 planting season.

In June 2011, the contractor was directed to perform Bergen Beach Wetland Mitigation of 1.4 acres for the work associated with outfalls at the Paerdegat and Rockaway bridges, the temporary trestles at Paerdegat Bridge, and the temporary bridge at Fresh Creek. Later, the Agency decided to increase the mitigated wetland area to 3.6 acres at the Bergen Beach site. The additional acreage will be used to offset future impacts on upcoming Belt Parkway bridge projects. The Bergen Beach mitigation work was completed in two phases. The first phase of 1.4 acres was started in the first week of June 2013. By the end of June 2013, grading was completed. Planting started on July 9, 2013, and was completed by the end of the month. The

## ACCOMPLISHMENTS & PLANNED PROJECTS

second phase grading started in mid-September 2013, and was completed on November 13, 2013. The planting was completed in the spring and fall planting seasons of 2014, and will be monitored for five years in accordance with the requirements of the New York State Department of Environmental Conservation.



Tidal Wetland Mitigation Site. Inspecting the Hurricane Sandy Damage at the Site in January 2013.



July 2013: Phase I Planting at the Bergen Beach Mitigation Area. August 2014: Grass Plantings Protected by Waterfowl Exclusion Fence. Placing the Plantings. Fence in October 2014.

The old Paerdegat Basin Bridge was a 692-foot long, 13 span, multi-girder, simple supported steel superstructure, supported on reinforced concrete pier cap beams and abutments supported on reinforced concrete piles. The bridge had two 34-foot wide roadways carrying three lanes of traffic in each direction; with a 3-foot safety walk on the north side, a 4-foot wide center median/barrier, and an 8-foot wide south pedestrian/bicycle sidewalk. The existing structure and immediate approaches were demolished and replaced by two new bridges and new approach roadways on split alignments. The existing structure was permanently closed to traffic on December 20, 2012, upon opening of the new westbound structure. Demolition of the existing structure was completed in May 2013.

The two replacement bridges consist of trapezoidal steel box girder structures: the 825-foot, 3 span westbound bridge, north of the existing structure, and the 1,227-foot, 5 span eastbound bridge, south of the existing structure, remaining at 28 feet over the navigable channel. Both bridges have a 36-foot wide roadway with a 12-foot wide right shoulder. The eastbound bridge has a 4-foot wide left shoulder, while the westbound bridge has a 10-foot wide left shoulder. The southern structure carries eastbound traffic while the northern structure accommodates westbound traffic. Both the horizontal and vertical alignments changed resulting in improved sight distances on the bridge and its approach roadways. The bridge carrying eastbound traffic also has a dedicated pedestrian/ bicycle path along the south side. The pedestrian/bicycle path is separated from traffic lanes by a concrete barrier on the bridge, and by a 15-foot wide grass mall on the approach roadways.

## ACCOMPLISHMENTS & PLANNED PROJECTS



Old Paerdegat Basin Bridge. New Bridges in November 2013.

The Fresh Creek Bridge was a 264.5 foot, 5 span, multi-girder, simple supported steel superstructure, supported on pre-cast concrete columns founded on four reinforced concrete piers on concrete piles with concrete gravity abutment walls on timber piles. One navigation channel crossed under the bridge. The bridge had two 34'-2" wide roadways, a 5-foot wide center median/barrier, and a 10-foot wide south sidewalk. The parkway, east and west of the bridge, has a 10-foot wide bicycle/pedestrian path on the south side. The existing structure and immediate approaches were demolished in spring 2012, and the replacement structure was fully opened in August 2013.

The replacement bridge is a 316-foot, 3 span structure; the new structure has only two support piers, resulting in a wider channel. The bridge deck and approaches were widened to 126 feet from the former 86 feet to accommodate three 12-foot lanes in each direction, 12-foot wide right shoulders, and a 12-foot wide bicycle/pedestrian path, separated from the traffic lanes by a barrier system. The profiles of the approach roadways and bridge structure accommodate stopping sight distances for a design speed of 60 miles per hour. The remainder of the construction resulted in improved landscaping on the bridge approaches. The existing pedestrian and bicycle pathway were maintained and open at all times during construction.



Old Fresh Creek Bridge. New Bridge in November 2013. (2002 Credit: NYSDOT)

The Rockaway Parkway Bridge was a 150-foot, 4 span, multi-stringer, simple supported steel superstructure, supported on steel cap beams on concrete filled steel pipe columns, and reinforced concrete abutment walls supported by concrete pile foundations. The bridge had two 34'-2" wide roadways, a 5-foot wide center median/barrier, and a 10-foot wide south sidewalk. The existing structure and immediate approaches were demolished in fall 2012, and the replacement structure was fully opened in August 2013.

## ACCOMPLISHMENTS & PLANNED PROJECTS

The replacement bridge is a single span structure to improve visibility along Rockaway Parkway. The new structure was built in the same alignment as the existing bridge. The bridge deck was widened to 109 ½ feet from the former 84 feet to accommodate three 12-foot lanes with a 12-foot wide right shoulder and 4-foot left shoulder in each direction, including 5 ½ feet for median and parapet width. The right shoulder on each approach is 10 feet wide (while the width of the right shoulders on the bridge structure are 12 feet), with the other dimensions the same width as those on the bridge. In addition to reconstruction of the bridge, four access ramps were also reconstructed as was Rockaway Parkway in the vicinity of the Belt Parkway.



Old Rockaway Parkway Bridge. New Bridge in November 2013. (2002 Credit: NYSDOT)

A Notice to Proceed for the reconstruction of the Group 1 bridges was issued to the contractor with a start date of October 26, 2009. Milestone A consisted of all work required to complete the reconstruction of the Paerdegat Basin, Fresh Creek, and Rockaway Parkway Bridges, including all roadway sections and ramps, within the limits of the construction, adjacent to and between the bridge structures. The contract provided for an incentive of \$35,000 per day for each day that milestone A was finished early, with a maximum incentive of \$14.98 million. There was a similar disincentive if the milestone date were to be exceeded, with no maximum. By reaching substantial completion on August 22, 2013, the contractor earned the maximum incentive. On December 12, 2013, the project was awarded the Excellence in Partnering Award for Informal Partnering from the AGC of New York State, LLC.



August and September 2014: Erosion Control at the Eastbound Paerdegat Bridge. Placing Fabric and Hydro-Seeding Under the Bridge. November 2014: Tub Girder Touchup Painting. October 2014: Bike Symbols on the Bicycle/Pedestrian Path East of Rockaway Circle. Three Rail Wood Fence. Associate Staff Analyst Kim Mulcahy, Civil Engineering Intern Jessica Wang, and Civil Engineer Reza Sharif at the Final Landscaping Inspection in November 2014.

## *ACCOMPLISHMENTS & PLANNED PROJECTS*



Summer 2014: Paerdegat, Fresh Creek, and Rockaway Parkway Bridges.

The existing Gerritsen Inlet Bridge is a 520-foot long, 9 span, steel girder and reinforced concrete beam superstructure, supported on reinforced concrete piers, and abutments supported on timber piles. The existing structure and immediate approaches will be demolished and replaced.

The replacement bridge will consist of a 496-foot, 3 span bridge, aligned 10'-6" north of the centerline of the existing structure, and remaining 35 feet over the navigable channel. The bridge will have a 36-foot wide roadway with a 12-foot wide right shoulder and a 4-foot wide left shoulder in each direction. The eastbound side will carry a dedicated pedestrian/bicycle path along the south fascia. A Notice to Proceed was issued to the contractor with a start date of February 25, 2013.

Construction operations performed in spring 2013 included the installation of temporary concrete barriers as part of the Stage 1 maintenance and protection of traffic; the installation of construction fences and tree protection; clearing and grubbing along the north side of the parkway including the removal of existing trees as specified in the contract; and the installation of soil stabilization and erosion control measures. As the summer and Stage 1 progressed, the contractor installed earth embankments for the new eastbound and westbound approach roadways; installed new drainage structures and pipe; and repaired bridge flags on the existing bridge structure. In the fall, the Stage I abutment piles and footings were constructed, as were the two deep foundation cofferdams for the new water piers. The pier pile installation work was completed in December 2013, in advance of the substructure work, including the pier footings, plinths, columns and pier caps.

## ACCOMPLISHMENTS & PLANNED PROJECTS

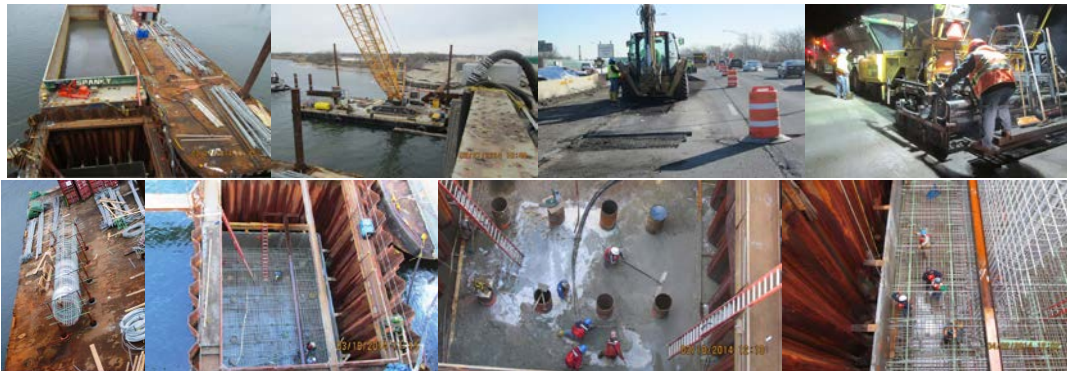


Gerritsen Inlet Bridge in 2013. Proposed Gerritsen Inlet Bridge.



June 2013: North Side of Gerritsen Bridge - Turbidity Curtains Placed on Both Sides of Navigable Channel. July 2013: Work Barges Driving Steel Sheeting for Pier #1 Cofferdam. September 2013. October 2013: Rebars and Form Work for Footing and Walls at the Northwest Abutment. Stage 1 Piles. November 2013: Inspecting Rebar. December 2013: Tremie Concrete Pour at Pier #2. Inspecting Spans 7 & 8 of the Existing Bridge From a Barge. (Inspection Credit: NYSDOT)

In 2014, the contractor completed all of the Stage 1 (north side) substructure work, including the placement of the concrete piers and abutments. Fabrication of structural steel is ongoing and is scheduled to be completed in early 2015, followed by the placement of the concrete bridge deck. The Stage 1 concrete approach roadways on the north side of the project were also completed in 2014, as were the temporary asphalt transition areas on the approaches. In spring 2015, it is anticipated that the contractor will transition to Stage 2 and move all traffic to the new northern section of the bridge. Stage 2 work to be completed in 2015 includes all foundation and substructure concrete operations, as well as the installation of structural steel and the concrete bridge deck.



February 2014: Dewatering Cofferdam at Pier No. 1. A Work Barge With Pile Rebar Cages is Moored at Right. Crawler Crane on Work Barge at Pier No. 2 Cofferdam on North Side. Temporary Spud Piles That Anchor Work Barges are Visible. Pavement Repair Operation on Eastbound Belt Parkway West of the Bridge – Pavement Prepared to Receive Hot Mix Asphalt. Asphalt Paving Machine Placing Hot Mix Asphalt on Eastbound Belt Parkway Right lane, West Side. March 2014: Galvanized Steel Rebar Cage in Fabrication on



## ACCOMPLISHMENTS & PLANNED PROJECTS

Work Barge for Pier Reinforcement. Setting Footing Rebars Prior to Placing Pier Rebars and Concrete at Pier No. 2. Finishing the Tremie Concrete Inside Cofferdam at Pier No. 1. April 2014: Setting Rebars for Footing and Pier Inside Cofferdam at Pier #1.



May 2014: Placing and Finishing the Portland Cement Concrete Pavement on Grade at Westbound Approach to the Gerritsen Inlet Bridge. Plinth and Column Reinforcement Inside the Cofferdam for Pier 2. June 2014: Placing and Vibrating Concrete for Plinth at Pier #1. Rebars for Column in Place. West Abutment of Bridge. New Roadway Under Construction at top Next to Westbound Lanes. East Abutment of Bridge. Crane on Barge at Cofferdam for New Pier #2. July 2014: Finishing Plastic Concrete for Pedestal at Pier #1 Cap Beam. Placing PCC Pavement at East Approach. Finishing PCC Pavement Around Catch Basin at East Approach. Spreading Hot Mix Asphalt on Belt Parkway East Side of Bridge.



August 2014: Workers Inside Rebar Cage During Operation of Pumping Concrete Into Pier #2 Column. Placing and Finishing PCC Pavement at West Approach. Span 6 Right Fascia. (Span 6 Credit: NYSDOT) November 2014: Steel Sheeting in Place for the East Approach Temporary Access Roadway.

Opened on June 29, 1940, the Mill Basin Bridge is adjacent to the Jamaica Bay Wildlife Refuge and the Gateway National Recreation Area. It is the only movable bridge on the Belt Parkway. The current clearance over Mean High Water is 35-feet. When the Mill Basin Bridge was constructed during the first half of the 20<sup>th</sup> century, New York City's inland waterways were among the most heavily navigated thoroughfares in the country. However, as maritime traffic in New York City steadily decreased since the mid-1960s, the need for movable bridges lessened as well. In 1941, during its first full year of operation, the Mill Basin Bridge was opened 3,100 times; by 1953, that figure decreased to 2,173; by 2014, the number of openings declined further to a total of only 210 openings.

In addition, significant and costly traffic congestion results from the operation of this outmoded drawbridge. In 2013, the Mill Basin Bridge carried 148,084 vehicles per day. The average opening and closing time for the bridge (and others like it) is ten minutes. Thus, this structure's operation has a negative and significant effect on the efficiency of New York City's vehicular traffic flow.

The existing Mill Basin Bridge is 864-feet long and 14 spans, including double movable leaf bascule spans and a steel superstructure, supported on reinforced concrete piers on timber piles, and abutments supported on pre-cast concrete piles. The existing structure and immediate approaches will be demolished and replaced.

The replacement will be a 2,645-foot long, 17 span, 60-foot high fixed bridge. It will consist of a steel composite superstructure and reinforced concrete substructure on piled footings, and will be constructed on a new alignment set on the north side of the existing bridge and partially overlapping with the existing bridge. The new bridge and approach will have three 12-foot wide

## ACCOMPLISHMENTS & PLANNED PROJECTS

traffic lanes, a 12-foot wide right shoulder on the bridge, a 10-foot wide right shoulder on the approaches, and a minimum left shoulder in each direction. The eastbound side will carry a dedicated pedestrian/bicycle path along the south fascia. The new bridge will be a fixed structure with a 60-foot vertical clearance over Mean High Water, obviating the need for opening and closing the structure to accommodate tall vessels. The channel will remain navigable during construction, and the clear channel width will remain the same after the new structure is in place. A new fender system will be installed to protect the bridge substructure from marine traffic. The contract will be completed in four stages of work (including two additional sub-stages) and will maintain three lanes of vehicular traffic in each direction, as well as pedestrian and bicycle traffic during all construction stages. Construction is expected to begin in the summer of 2015 and last for 4 ½ years, including demolition of the existing bridge.



Current Belt Parkway Bridge Over Mill Basin. Aerial Views. Proposed Bridge. Open Bridge.



May 2013 – Inspecting the Bridge From a Barge. Freshwater and Tidal Wetland Mitigation Sites.

The existing Bay Ridge Avenue Bridge is a 58-foot long, single span, reinforced concrete deck on a multi-girder system superstructure over Bay Ridge Avenue. The superstructure is supported by concrete gravity type abutments on pile foundations. There is pedestrian access under the bridge to both the American Veterans Memorial Pier and the Shore Parkway Seawall pedestrian and bicycle paths. The underpass is also access to the NYCDEP Owl's Head Wastewater Treatment Plant. The existing superstructure will be demolished and replaced.

The replacement bridge superstructure will consist of precast, pre-stressed concrete box beams and a reinforced concrete slab. The bridge will have three 12-foot wide lanes in the eastbound direction and two 12-foot wide lanes separated by a 4-foot wide painted stripe flush median in the westbound direction. There is no pedestrian/bicycle path on the structure. The clearance will be increased to 14-foot 6-inches, which removes the need for clearance signs currently posted for a substandard condition and will obviate the need for underdeck wood shielding. A Notice to Proceed was issued to the contractor with a start date of November 4, 2013. The only construction operations performed in fall 2013 were the survey and stake out of the project.

## ***ACCOMPLISHMENTS & PLANNED PROJECTS***



Bay Ridge Avenue Bridge in 2012. (Credit: NYSDOT) Proposed Bay Ridge Avenue Bridge. Current Aerial View.

During 2014, two of the five construction stages were completed and commencement of the third stage was underway as of November. Work completed during this time included temporary deck reconstruction and flag repairs. Permanent reconstruction included the new concrete bridge barriers along the westbound roadway and new pre-stressed concrete box beams, superstructure slab, pavements, pressure relief joints, approach slabs and upper abutment stem wall reconstruction for the westbound segment of the new bridge and approaches.



March 2014: Rebar Cage. April 2014: Workers Cleaning out Catch Basins Using a High Pressure Water Hose and Vacuum Pipe for Debris Removal. Pavement Breakers used to Demolish the Existing Bridge Deck During Preparation for Stage I MPT. May 2014: Temporary Deck Repair of Eastbound Roadway Using Steel Plates. Placing and Compacting Hot Asphalt Over Steel Plate Deck Repair at Eastbound Bridge. May 2014: Core Sampling.



June 2014: Stage II Deck Removal of Westbound Bridge Deck. Veteran's Memorial Pier at Top. July 2014: Saw Cutting the Existing Northwest Abutment. Setting Rebars at the Northwest Abutment. August 2014: Lowering the Last of the Seven Pre-cast Concrete Box Beams on the North Side Abutments.



## ACCOMPLISHMENTS & PLANNED PROJECTS

September 2014: Placing Rebars for the North Parapet. October 2014: Floating the Deck Concrete at the Bridge Facing North. Placing Burlap on the Concrete Deck for Wet Cure. Covering the Approach Slab Concrete at the West Side of the Bridge. The Main Bridge Deck Undergoing Wet Cure. November 2014: Washing the New Westbound Concrete Deck Prior to the Placement of the Temporary Barrier at Left Side Before Stage III Traffic Shift. Facing East. Demolition of the Saw Cut Westbound Bridge Deck During Stage III. December 2014: Removing Steel Stringer During Stage III. Facing South.

The existing Nostrand Avenue Bridge is a 140-foot long, 3 span, multi-girder superstructure, consisting of a concrete deck with an asphalt overlay over Nostrand Avenue. The superstructure is supported by concrete pier columns with a steel cap beam, and abutments on concrete filled steel pile foundations. The existing structure and immediate approaches will be demolished and replaced. Reconstruction is anticipated to start in 2021. The condition rating of this bridge is better than the other remaining bridges in this program; rescheduling will not negatively impact the bridge users.



Nostrand Avenue Bridge Right Girder in November 2012. Left and Right Elevations in 2014. (2014 Credit: NYSDOT)

### HENRY HUDSON PARKWAY OVER 72<sup>ND</sup> STREET TO WEST 82<sup>ND</sup> STREET AND OVER WEST 94<sup>TH</sup> TO WEST 98<sup>TH</sup> STREET (MANHATTAN)

The viaduct was originally constructed in 1937. Since then, several rehabilitation projects were performed, including deck replacement and structural steel repair at various locations. The reconstruction project will consist of repairs of the deck and steel elements of the viaduct superstructure in ten spans from West 72<sup>nd</sup> Street to West 82<sup>nd</sup> Street, and four spans from West 94<sup>th</sup> Street to West 98<sup>th</sup> Street. The deck repairs will include top pavement replacement, concrete barrier repairs and deck joints replacement. The steel repairs will include installation of reinforcements to the deteriorated girders, columns, connections and bearings. The deck top work will be performed in stages to minimize the parkway closures. Construction is expected to begin in mid-2017.



Aerial View of the Viaduct.

## ACCOMPLISHMENTS & PLANNED PROJECTS

### HILL DRIVE BRIDGE (TERRACE BRIDGE) OVER PROSPECT PARK LAKE (BROOKLYN)

The landmark Hill Drive Bridge was built in 1890, and was designed by Calveart Vaux. It was previously known as the Breeze Hill Bridge. The existing Parks bridge is a three span simply supported steel girder/beam structure, with the center arch span crossing Prospect Park Lake, and the other two spans consisting of underground masonry cellular structures with multiple interior masonry-bearing walls and non-composite concrete deck and concrete sidewalk. The substructure of the bridge consists of solid gravity masonry abutments with U-type wing walls.

This project will include the replacement of the existing masonry cellular abutments with new reinforced concrete abutments clad with existing stone and new brick masonry; the removal, storage, and reinstallation of the existing stone wing walls with a new reinforced concrete core; the replacement of the existing stringers and floor beams with new steel stringers; the reinforcement of the existing arch girders with new cover plates; the reinstallation of the steel arch girders at their current locations to replicate original construction; and the replacement of the existing masonry arches spanning between floor beams by masonry cladding on the underside of the new arched concrete deck. The concrete deck, approaches, sidewalk, and roadway will be replaced within the project limits.

The ornamental cast iron and stones will be rehabilitated and reinstalled, replicating all the historic features and aesthetics of the original bridge. New bridge lighting and drainage systems will be installed. The park landscape will be restored, and trees identified by the Prospect Park Alliance as rare and/or historic shall remain undisturbed during construction.

The project to reconstruct the bridge has been suspended until such time as Parks funding is available. Repairs requiring immediate attention are performed by the When and Where contractor. This bridge is closed to vehicular traffic.



Hill Drive Bridge Span 2 Pier 1 End Face in 2013. View of Bridge in 2012. End Approach in May 2011: The Bridge is Closed to Vehicular Traffic. The Left Half of the Bridge is Closed to Pedestrians. (Credit: NYSDOT)

### MARINE BORER REMEDIATION (MANHATTAN & BROOKLYN)

Marine borers pose an immediate and serious danger to the thousands of piles and other structures of timber built in the marine environment. In New York Harbor, as the water quality improved due to many years of clean-up efforts, marine borer (*limnoria*, *teredo*, etc.) activity has increased significantly in recent years. The recent inspections of timber structures by various local agencies (such as The Port Authority of NY & NJ, NYS Department of Transportation, NYC Department of Sanitation, and NYC Economic Development Corporation) indicate increasing damage to their structures resulting from marine borer activity. These agencies are implementing measures to protect the structures against marine borers.

## ACCOMPLISHMENTS & PLANNED PROJECTS



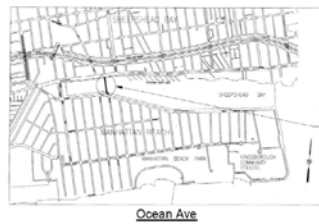
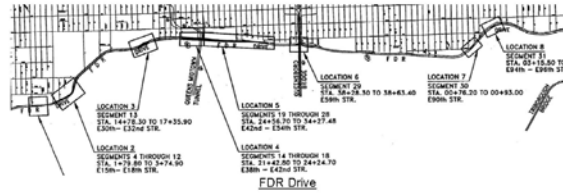
Marine Borer – Limnoria Species (the Common “Gribble,” a Genus of Crustacea Borers). Marine Borer – Teredo Species (a Genus of Molluscan Borers, Commonly Called the “Shipworm”). Teredo Damage (Holes up to ¼” Diameter).



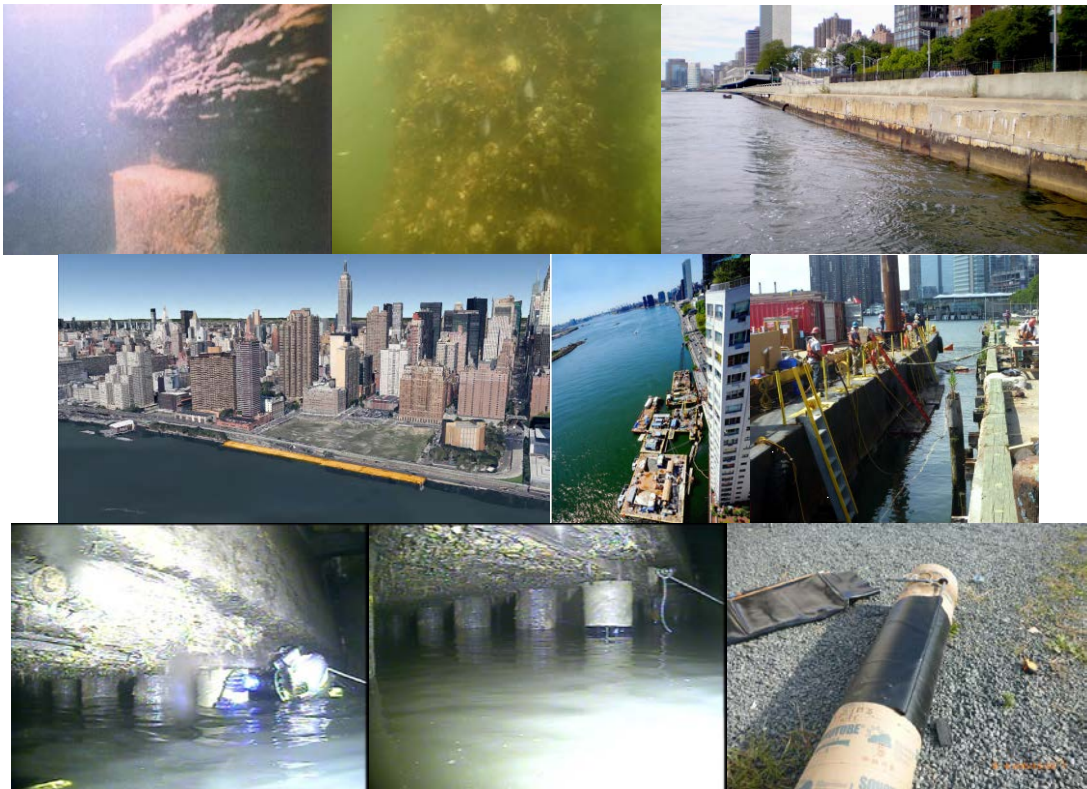
From Study of FDR Drive: Location #2 – Damaged Seawall at Segment #5. Sinkhole at Location #6 at East 59<sup>th</sup> Street. From Study of Carroll Street Bridge: General View of the Southwest Crib Wall With the Delamination of the Timber Stretchers in the Tidal Zone.

In October 1999, the Department began a study to assess the existing damage caused by marine borers as well as the potential for future damage at several waterfront DOT structures, including the supporting structures of the relieving platforms along the FDR (from East 15<sup>th</sup> to East 96<sup>th</sup> Street) Drive, and the timber piles and structures of the Carroll Street and Ocean Avenue bridges in Brooklyn. The underwater inspection of timber piles supporting the FDR Drive began on May 8, 2000. Inspection of the Brooklyn sites was conducted during the week of October 23, 2000. The inspections were completed in October 2000, and the Marine Borer Evaluation Report was published in June 2001. Using the results of the underwater inspections, preliminary plans were developed for the implementation of repairs and remediation measures to protect the structures from attack. These preliminary plans were completed in December 2001. An updated underwater inspection was performed within the limits of the proposed contract in 2009. Final design was completed in June 2011.

## ACCOMPLISHMENTS & PLANNED PROJECTS



Project Locations.



Severe Marine Borer Infestation in Timber Cribbing of Carroll Street Bridge and Moderate Marine Growth Below Waterline on the Ocean Avenue Pedestrian Bridge in 2009. (Credit: NYSDOT) FDR Drive. Location #4 on FDR Drive. Work Barges. Diver Applying Petrolatum Tape. Lower Wrap Section Applied.

The construction project is being performed almost entirely underwater and will include barrier wrapping (placement of plastic barrier wrap around a timber pile to prevent marine borers from

## ***ACCOMPLISHMENTS & PLANNED PROJECTS***

settling on and penetration into exposed wood); pile encasement (concrete encasement of selected severely damaged piles to reinforce and protect them from marine borers); pile posting (cutting off deteriorated upper portion of pile and replacing it with a new treated timber post); pile cap encapsulation (encapsulation of submerged timber pile caps and timber fascia with plastic lumber and synthetic mastic); bracing replacement (replacement of structural timber bracing with new treated lumber); timber removal (removing timber stays, bracing and formwork located at the top of the piles); installation of additional two-way bracing (installation of two-way bracing using tread lumber to upgrade the strength of piles by reducing the unbraced length); placement of light weight concrete fill (filling in locations where the distance from underside of the platform deck to the top of the mudline is less than one meter creating insufficient headroom for divers to wrap or jacket piles); and superstructure timber replacement (timber pile caps, railing members and other timber superstructure elements along with severely corroded steel correction hardware located above the high water line will be replaced in kind). A Notice to Proceed was issued to the contractor with a start date of April 2, 2012. The construction work is expected to be complete in August 2016.

### **RIVERSIDE DRIVE BRIDGE OVER WEST 158<sup>TH</sup> STREET (MANHATTAN)**

The Riverside Drive Viaduct is located between West 153<sup>rd</sup> Street and West 161<sup>st</sup> Street. It is approximately 1,924 feet long and has 77 spans. This viaduct consists of intermittent straight portions, and six curves of different radii. It was constructed in two sections. The south cantilever section, from West 153<sup>rd</sup> Street to West 155<sup>th</sup> Street, was completed in 1908 and a portion of it spans over the Amtrak right of way. The north bent type section, from West 155<sup>th</sup> Street to south of West 161<sup>st</sup> Street, was completed in 1928. The bent type portion of the viaduct includes a windowed enclosure under the bridge that houses NYCDOT and NYPD facilities. The building structure to the north of West 158<sup>th</sup> Street is used by NYPD for a vehicle repair garage. The building structure to the south of West 158<sup>th</sup> Street is used by NYCDOT for storage of vehicles, roadway maintenance materials and is also a NYCDOT Maintenance and Repair Facility. The bridge carries four lanes (two each way).

Project work will include the repair of deteriorated structural steel members; replacement of the existing deck; abutment and retaining wall repair; repairs and replacement of concrete barriers and bridge rails; complete expansion joint replacement; approach slabs and pavement replacement; cleaning and necessary repairs of drainage system, and paint removal, lead abatement and recoating of steel. The bridge will remain open to traffic throughout field work and construction. Construction is expected to begin in 2017.



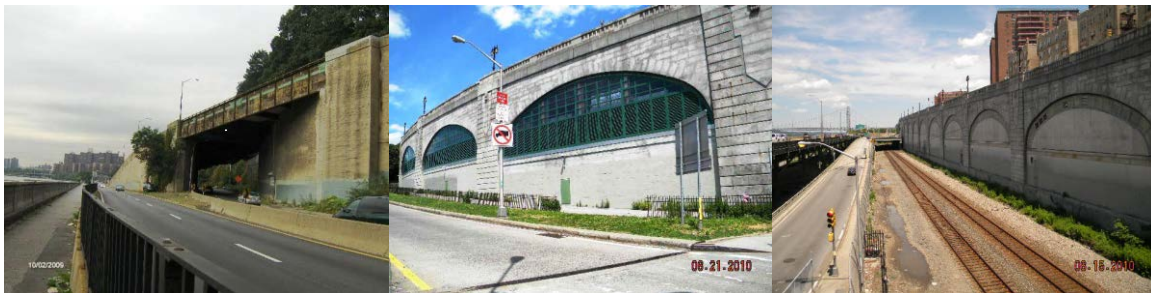
## ACCOMPLISHMENTS & PLANNED PROJECTS



Riverside Drive Bridge in 2010. (Credit: NYSDOT) Vehicle Repair Facility.

### TRANS-MANHATTAN EXPRESSWAY CONNECTOR RAMP FROM THE HARLEM RIVER DRIVE (HARLEM RIVER DRIVE RAMP TO GEORGE WASHINGTON BRIDGE OVER HARLEM RIVER DRIVE SOUTHBOUND) (MANHATTAN)

The Trans-Manhattan Expressway Connector Ramp is an elevated viaduct that consists of a multi-span steel superstructure supporting a concrete deck. The ramp connects the Trans-Manhattan Expressway to the Harlem River Drive and it was built in 1939. It is a 2,080 foot long and 57 foot wide structure, consisting of 14 steel spans and 41 reinforced concrete spans, carrying two lanes of traffic in each direction, northbound and southbound. In 2008, New York State DOT completed an approximately \$4.5 million “top-side” repair project of the wearing surface, joints, median, parapets, and other above-deck elements. The NYCDOT project will rehabilitate the bridge steel and concrete components. Several locations of spalls are currently protected by mesh and/or netting. Construction is expected to begin in mid-2015.



Trans-Manhattan Expressway Connector Ramp in 2009: Elevation Right Spans 1 – 25. 2010 – Elevation Right Spans 13 to 1, and 43 to 13. (Credit: NYSDOT)

## ACCOMPLISHMENTS & PLANNED PROJECTS

### 17<sup>TH</sup> AVENUE AND 27<sup>TH</sup> AVENUE PEDESTRIAN BRIDGES OVER BELT PARKWAY (BROOKLYN)

The 17<sup>th</sup> Avenue and 27<sup>th</sup> Avenue Bridges are three-hinged, steel arch girder bridges with granite-faced concrete abutments and Art Deco steel railings. These two pedestrian overpasses have deteriorated over time, and due to low vertical clearance, have suffered impact damage from overheight vehicle traffic on the Belt Parkway below. The 17<sup>th</sup> Avenue Bridge has a vertical clearance of 10'-8", at its lowest point, and the 27<sup>th</sup> Avenue Bridge a 12'-4" vertical clearance at its lowest point. Both bridges have an overall span length of approximately 125 feet, and a bridge deck width of 15 feet. In addition, these structures are not in compliance with American Disability Act (ADA) requirements.

The 17<sup>th</sup> Avenue Bridge provides the only pedestrian access to the shoreline promenade from the surrounding Bath Beach and Bensonhurst communities. The 27<sup>th</sup> Avenue Bridge provides the main pedestrian access from the community to Dreier Offerman-Calvert Vaux Park.



17<sup>th</sup> Avenue Bridge – Existing Conditions. Deteriorated Left Girder.



27<sup>th</sup> Avenue Bridge – Existing Conditions.

In this project, the overpasses at 17<sup>th</sup> and 27<sup>th</sup> Avenues will be completely replaced. The structures will be designed to current codes and standards and all substandard features will be eliminated. Additionally, as the existing bridges were constructed under the Robert Moses era Master Plan for NYC, the proposed bridge designs will follow the Shore (Belt) Parkway Design Guidelines which were developed in November 2006, in order to preserve and reestablish the historic character of the parkway for drivers and pedestrians while enhancing and strengthening the visual cohesiveness of the greenspace connected to the adjacent park and recreation land. Construction is anticipated to begin in 2016, and is expected to be complete in 2018.

## ACCOMPLISHMENTS & PLANNED PROJECTS



17<sup>th</sup> And 27<sup>th</sup> Avenue Bridges – Proposed Bridges.

### WEST 79<sup>TH</sup> STREET BRIDGE OVER AMTRAK (MANHATTAN)

The West 79<sup>th</sup> Street Bridge over Amtrak, built in 1937, is a single span structure, with steel, non-composite girders and a reinforced concrete slab. The bridge carries two lanes of traffic in each direction and has a sidewalk on each side. The project work will include the removal of the existing concrete deck, sidewalks and the pedestrian safety barrier. The deck will be replaced with a 9.5 inch concrete slab with integral wearing surface, a new sidewalk and safety barriers on a rehabilitated superstructure. Construction is expected to begin in 2018.



West 79<sup>th</sup> Street Bridge Over Amtrak in 2010. Underside of Bay 7. (Credit: NYSDOT)

## ***ACCOMPLISHMENTS & PLANNED PROJECTS***

### ***BRONX, QUEENS, AND STATEN ISLAND BRIDGES***

#### **TEN CULVERTS: GALLOWAY AVENUE OVER MARIANNE STREET, FOREST AVENUE OVER CRYSTAL AVENUE, NAUGHTON AVENUE OVER PATTERSON AVENUE, MIDLAND AVENUE OVER HYLAN BOULEVARD, ROCKLAND AVENUE OVER BRIELLE AVENUE, FOREST AVENUE OVER RANDALL AVENUE, GREGG PLACE OVER RANDALL AVENUE, ARTHUR KILL ROAD OVER MULDOON AVENUE, RICHMOND HILL ROAD OVER RICHMOND ROAD, AND ARTHUR KILL ROAD OVER RIDGEWOOD AVENUE (STATEN ISLAND)**

This ten culvert reconstruction project is in the final design stage.

The Galloway Avenue culvert is a single span timber pedestrian culvert supported on a concrete abutment. It is located approximately 262.4' east of the intersection of Galloway Avenue and Crystal Avenue. The channel beneath the culvert bisects Galloway Avenue, thereby making the culvert the only means of carrying pedestrians from one side of the channel to the other. The existing culvert will be removed and a new culvert will be constructed. The culvert will be closed during construction.

The Forest Avenue culvert over Crystal Avenue is a single span reinforced concrete box culvert. It is located approximately 230' east of the intersection of Forest Avenue with Crystal Avenue. The reconstruction will consist of the demolition of the existing culvert, clearance of debris from the channel, replacement of the culvert with a concrete deck slab supported on steel beams on reinforced concrete abutment and wingwalls. The construction work is planned to be performed in four stages with proposed four traffic lanes being maintained at all times.

The Naughton Avenue culvert consists of three parallel reinforced concrete pipes at the north and south ends separated by a twin barrel box culvert. It is barricaded at the east end by guide rail and bordered at the west by a wooded area. The rehabilitation will include repairing the concrete cracks and spalls, cleaning the debris, and replacing the missing anchor bolts for the retractable steel grates. The construction is planned to be performed in one stage and no lane closure is required during construction.

The Midland Avenue culvert consists of a single span reinforced concrete box, which will be replaced with a new pre-cast box culvert. It is located on Midland Avenue between Boundary Avenue and Mason Avenue. The rehabilitation will include replacing the existing concrete box structure with a new concrete box structure, new sidewalk, curb, pipe railing, chain link fence and asphalt wearing surface. The work will be performed in three stages, with one lane of traffic maintained in each direction at all times.

The Rockland Avenue reinforced concrete culvert project will include concrete repair and a lined and stabilized north embankment. It is located approximately 361' west of the intersection of Rockland and Manor Avenue. The rehabilitation work includes clearing the debris and vegetation from the channel and installing a structural lining. The construction is planned to be performed in one stage and no street closures will be required during construction.

The Forest Avenue culvert over Randall Avenue is a single span concrete box culvert, located at Forest Avenue between Randall Avenue and University Place. It will be replaced with a new precast concrete box culvert with new sidewalks and asphalt pavement. The work will take place in three stages while maintaining one traffic lane in each direction during construction.

The Gregg Place culvert is a single span reinforced concrete box culvert, located approximately 98.4' west of the intersection of Gregg Place and Randall Avenue. The rehabilitation includes replacing the southern portion with a new precast box culvert with new pavement. The construction is planned to be performed in one stage and the north side of the road will remain open to through traffic.

The Arthur Kill Road culvert over Muldoon Avenue consists of a reinforced concrete pipe at north

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and a reinforced box culvert at south. It is located on Arthur Kill Road between Muldoon Avenue and Arden Avenue. The box culvert will be replaced with a new box culvert, and a structural lining will be installed in the pipe culvert. The construction will be performed in one stage with one lane of traffic maintained in each direction.

The Richmond Hill Road culvert consists of a single span stone masonry arch, built in 1845 according to a sign posted by the wingwall of the culvert. It is located on Richmond Hill Road between Richmond and Old Mill Roads. The rehabilitation work will include removing and re-pointing the stone masonry, removing and replacing the fill and asphalt wearing surface above the arch, and cleaning the vegetation and sedimentation. The work is proposed to be completed in one stage and no road closures will be necessary.

The Arthur Kill Road culvert over Ridgewood Avenue consists of a non-reinforced concrete pipe at south and a corrugated metal pipe at north. It is located approximately 100' west of the intersection of Arthur Kill Road and Ridgewood Avenue. The rehabilitation work will include installing a structural lining inside the concrete pipe and repairing the concrete at the head walls and catch basins. There will be one stage of construction and one lane of traffic will be maintained in each direction.

This project to rehabilitate and/or replace the ten culverts is currently in the final design stage, and is expected to begin in December 2016 and to be complete in 2018.



Galloway Avenue over Marianne Street, Forest Avenue over Crystal Avenue. Naughton Avenue over Patterson Avenue, Midland Avenue over Hylan Boulevard. Rockland Avenue over Brielle Avenue, Forest Avenue over Randall Avenue. Gregg Place over Randall Avenue, Arthur Kill Road over Muldoon Avenue. Richmond Hill Road over Richmond Road, Arthur Kill Road over Ridgewood Avenue.

### **BRYANT AVENUE BRIDGE OVER AMTRAK AND CSX (BRONX)**

The Bryant Avenue Bridge, oriented east to west between Buckner Boulevard and Garrison Avenue, is a one span structure constructed in 1908. It spans 90 feet over four railroad tracks. This project includes replacement of the steel superstructure, bearings, approaches, water mains and rehabilitation of the existing substructures by removing and replacing the top portion of the concrete abutments to accommodate the new superstructure. The abutments will be retrofitted to meet seismic criteria. The proposed superstructure will consist of a reinforced concrete deck over pre-stressed concrete adjacent box beams. The two existing water mains will be removed and replaced. Both water mains will be installed on top of the north sidewalk in a fenced-off area. The Division's in-house design staff completed the design for this project. A Notice to Proceed for the project was issued to the contractor with a start date of August 18, 2014. The bridge will be completely closed to vehicles during its construction, however, pedestrian access will be maintained. This project is expected to be complete in February 2016.

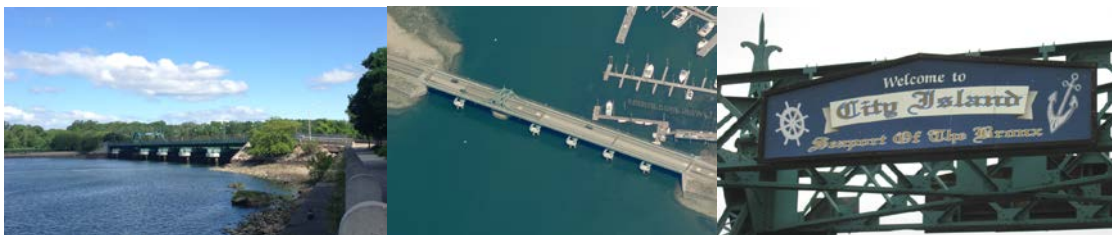
## ACCOMPLISHMENTS & PLANNED PROJECTS



Bridge Views Looking North and South. Bridge View From the Pedestrian Overpass. Location Map. Rendering of the Bridge After Construction.

### CITY ISLAND ROAD BRIDGE OVER EASTCHESTER BAY (BRONX)

The existing City Island Road Bridge was built in 1901 and is the only vehicular, bicycle and pedestrian access between the mainland Bronx and City Island. In 2013, the bridge carried 16,431 vehicles per day. The bridge is part of City Island Road, which is located within Pelham Bay Park and crosses over Eastchester Bay. With seven spans and six piers in the water, the bridge has outlived its useful life and requires extensive continuous maintenance. Spans two and three are supported by an overhead truss that originally functioned as a movable swing span but was permanently fixed in 1963.



View of City Island Bridge From the Esplanade. Aerial View of Current Bridge. Welcome Sign.

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The existing bridge will be replaced along the same alignment with a new three span bridge with two piers in the water. The new bridge will be approximately 17 feet wider than the existing one to accommodate three standard 12-foot wide traffic lanes, a 6-foot wide bicycle lane and a 6-foot wide pedestrian walkway on each side. The bridge will be a multi-girder continuous bridge with an integral deck. Galvanized steel stay-in-place forms will be used for the deck to both facilitate deck placement and shield the concrete from the corrosive environment of the saltwater bay below. The stainless steel rebar will also not be vulnerable to the deicing salt in the same way that epoxy coated rebar is. Therefore, the deck will have a much longer life expectancy since rebar corrosion is a primary factor in the deterioration of concrete. The new bridge will be designed to current standards and with its wider roadway width, will allow future repair and rehabilitation to be carried out while maintaining one 12-foot lane in each direction. It will also eliminate the vehicle height restriction caused by the existing overhead truss. In order to maintain traffic during the demolition of the existing bridge and construction of the new bridge, a temporary bridge will be constructed on the south side of the existing bridge. Marine traffic will remain undisturbed beneath the bridge during peak boating season.

The contractor's Value Engineering proposal was accepted to utilize a prefabricated steel bridge system for the temporary bridge with an asphalt riding surface on a steel-plated deck instead of a steel grid system and utilities located on the outside of the roadway between the riding surface and the sidewalk. Pedestrians and bicyclists will be separated with a steel truss system and fence from vehicular traffic. The temporary bridge sections will be fabricated off-site while the foundation work is being performed. Therefore, the bridge will be erected on a complete per span system rather than "stick" built. This will minimize the amount of time the contractor will be in Eastchester Bay erecting the temporary bridge. The schedule advantage will allow traffic to be shifted off the existing bridge sooner, reducing the required maintenance of the aging bridge. Removal of the bridge will be done similar to the erection reducing the time required to be in the bay.

As part of the bridge replacement project, the Legion Triangle at the intersection of City Island Avenue, City Island Road and Bridge Street will be modified.



Current Legion Triangle and Rendering. The Design is Slightly Larger Than the Existing Triangle, Features a Wide Variety of Flora, and Will Provide Ample Space for Visitors who Come to Pay Homage to the Veteran's Memorial.

At the City Island side there is a seawall along the shore which is about 500 feet in length starting from the bridge and heading in a southerly direction. This seawall will be rehabilitated and turned over to the Department of Parks and Recreation along with the esplanade which it is supporting. The rehabilitation of the existing concrete seawall will include a steel rod tieback system as a precaution against loss of stability due to overturning or sliding. In addition, all unsound concrete will be removed from the face of the wall and a new reinforced concrete facing will be cast along the entire length. The esplanade will receive landscape improvements such as a new railing above the wall, new plantings, trees, grass, and paver blocks.

## ACCOMPLISHMENTS & PLANNED PROJECTS



Existing Seawall. Proposed Treatment.

Turtle Cove Culvert is located under City Island Road approximately half a mile west of the existing bridge. As part of the wetland impact mitigation activities for the project, this culvert will be replaced with a larger one that will allow for greater tidal flooding from Eastchester Bay to the upland portions of Turtle Cove.



City Island Road Bridge in 2010. (Credit: Bojidar Yanev) Span 4, Right Sidewalk Near Pier 4 in October 2013. Vertical Clearance Posting. (Credit: NYSDOT) 9 Foot Tall Ornamental Finial.

A Notice to Proceed for the project was issued to the contractor with a start date of September 30, 2013. At the end of 2013, the contractor was preparing to proceed with test pits, staging area work, building surveys, and the installation of construction signing. During 2014, the contractor surveyed the area, set up temporary work zone traffic control devices, installed temporary signals, relocated the 16 inch water main on the existing bridge, and started the foundation work for the temporary bridge.



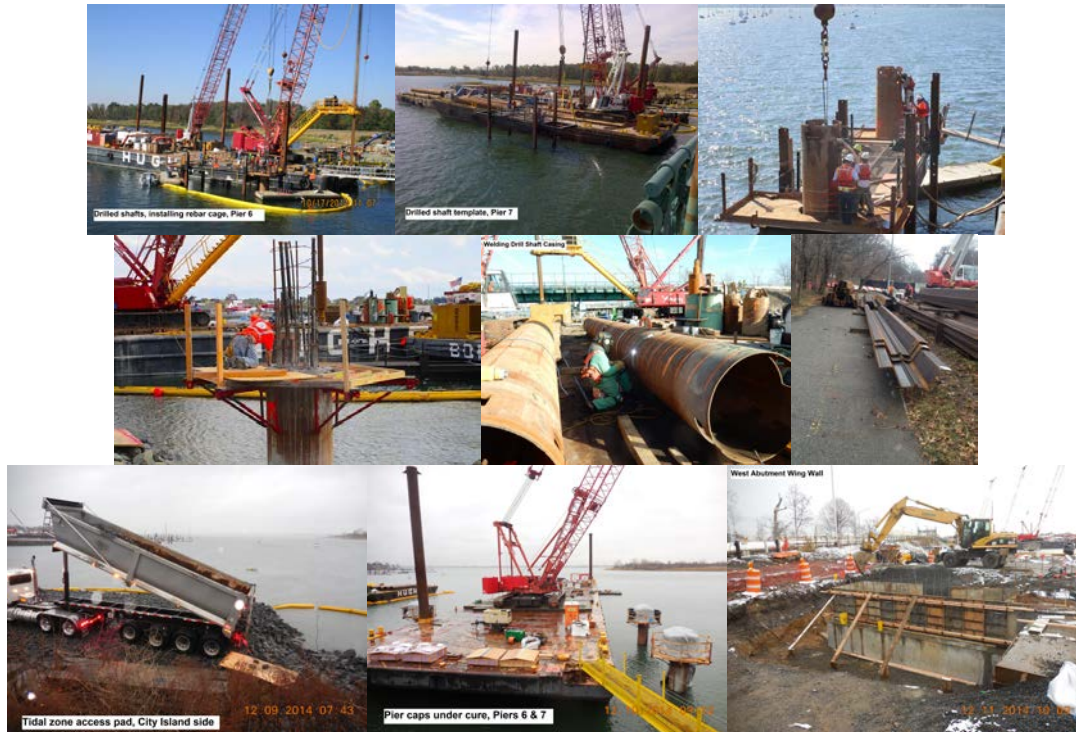
February 2014: Pothole Repair. August 2014: Contractor Constructing a 5-Foot Wide Walkway to Protect and Guide Pedestrians Around the Designated Work Zone on the Esplanade. Excavating on the West Side of the Bridge in the Presence of an Archeologist. Insulating the Temporary Water Main to Protect Against Low Temperatures and Accidental Impact.





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Approximately 300 Linear Feet of a Turbidity Curtain was Installed on the Southwest Side of the Bridge to Protect the Shore During Construction. A Turbidity Curtain is a Floating Barrier Designed to Contain and Control the Dispersion of Sediment. Drilling in the Southwest Side of the Bridge to Install the Footings and the Piers of the Temporary Structure.



October 2014: Drilled Shafts – Installing Rebar Cage at Pier 6. Template at Pier 7. The Contractor Airlifted Drilled Shaft Casings Into Position on a Platform Constructed Beside a Construction Barge. Fresh Pier Caps Being Prepared for Installation Atop Completed Drilled Shafts. These Will Serve as the Support Structures Once the Temporary Bridge is Seated. Welding Drill Shaft Casing. Sheeting at Turtle Cove. December 2014: Tidal Zone Access Pad, City Island Side. Pier Caps Under Cure at Piers 6 and 7. West Abutment Wing Wall.

Temporary bridge foundations were installed and the superstructure was assembled in the Brooklyn Navy Yard for installation in the early part of 2015. The construction of the new bridge is expected to start shortly thereafter, and it will be completed within the original contract schedule end date of December 30, 2016.



The Contractor Assembled the Temporary Bridge Segments at the Brooklyn Navy Yard. The Pieces Were Transported to City Island by Barge.



## ***ACCOMPLISHMENTS & PLANNED PROJECTS***



Existing and Proposed City Island Road Bridge Furnishings: Lighting, Fence, and Rail. Side View Rendering of New Bridge.

### **GRAND CONCOURSE BRIDGE OVER METRO NORTH (BRONX)**

The bridge was originally built in 1906. It is a single span bridge consisting of a concrete deck supported on five steel plate girders, one truss, and a steel truss subway structure located in the center of the bridge. The bridge carries three lanes of vehicular traffic in each northbound and southbound direction as well as NYCT subway traffic underneath the Grand Concourse Boulevard and above the Metro North railroad right of way. The upper portion of the bridge carrying the roadway is now structurally supported by the lower portion carrying the subway. The two portions of the bridge are dependent upon each other for support and stability but are being maintained individually by two separate agencies, the NYC Department of Transportation, and NYC Transit Subways respectively. The subway portion of the structure, comprised of four warren trusses, is stabilized by the roadway portion floor beams and the roadway portion is supported by the subway trusses.

In the new rehabilitation scheme, the roadway will be supported independently from the subway structure: the structures will be physically separated. Steel members will be added to the subway trusses to provide the stability previously provided by the roadway portion floor beams. The substructure consists of two concrete abutments bearing on rock ledges. The tops of these abutments lie at two levels, an upper level which supports the bridge stringers and a lower level which supports the subway trusses. The bridge stringers over the subway tracks bear on a composite steel beam/concrete backwall which will be replaced as part of this project. The foundation for the new trusses being installed to carry the roadway superstructure will bear on the rock behind the existing abutments.

The reconstruction project will also include building new sidewalks, as well as bridge railings with protective fencing, electrical conduits and fixtures, and the relocation of the existing water main under the sidewalk. The new roadway deck will be made of reinforced concrete with superpave type paving. A jointless deck will be installed to reduce or eliminate the corrosive effects of dripping water on both the existing steel members to remain as well as the new steel bridge members to be installed. Two lanes of vehicular traffic and the pedestrian walkway will be maintained in each direction on the Grand Concourse. Deterioration was discovered during a final design inspection to assess the structural condition of the bridge, and the consultant has been instructed to prepare an interim load rating to establish the structural capacity.

A value engineering workshop was held in August 2014 with the goal of developing recommendations to be considered by the project design team, construction and construction support personnel and the Agency to improve all aspects of the project. The resulting report is under review and discussion by the design consultant and the Agency. DOT and NYC Transit are in negotiations to resolve the jurisdictional issues arising from the separation of the existing jointly-operated bridge. This project, currently in the final design phase, is expected to begin construction in February 2018, and is expected to be complete in August 2020.

## ACCOMPLISHMENTS & PLANNED PROJECTS

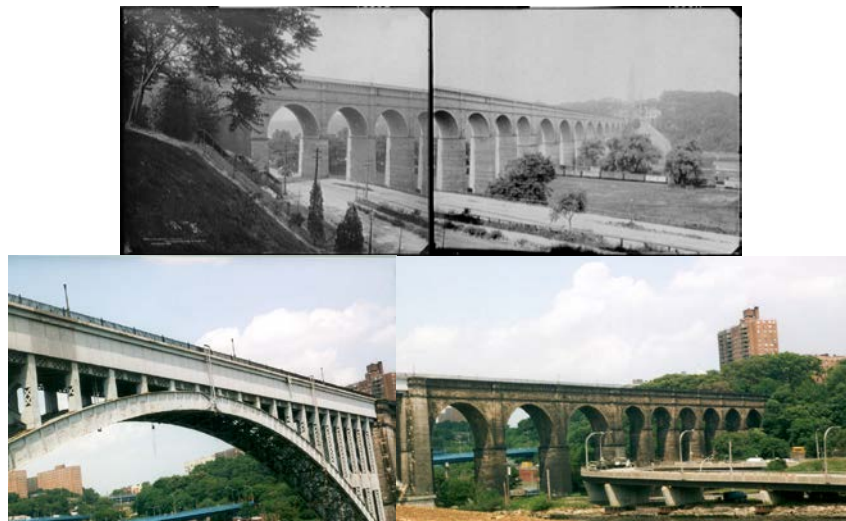


Grand Concourse Bridge over Metro North in 2010. (Credit: NYSDOT) Aerial View. Sidewalk and Top of Bridge.

### HIGH BRIDGE PEDESTRIAN BRIDGE OVER THE HARLEM RIVER (BRONX/MANHATTAN)

This eleven span landmark structure is the oldest (circa 1848) bridge over the Harlem River. It is listed on the New York State and National Register of Historic Places. The bridge is under the Department of Parks and Recreation's (DPR) jurisdiction. It was erected to carry water from the Croton aqueduct, and has been closed since 1970. The bridge spans the Harlem River, connecting the neighborhoods of Highbridge in the Bronx and Washington Heights in Manhattan.

Designed on principles of Roman aqueduct architecture, the granite bridge is about 116 feet in height, with the peak of its arches 100 feet above the Harlem River. The bridge is 1,450 feet long, measured from gatehouse to gatehouse, with a 1,200-foot-long brick walkway. The High Bridge was begun in 1839 and completed in 1848. Larger water pipes were added and the walkway was built in 1861-64. In 1927-28, after many years of calls for complete demolition of the bridge, the city replaced five of the original 15 arches with a central steel span to ease the passage of large ships. The rest of the majestic stone arches still stand, the majority on the Bronx side of the river. The bridge has never carried vehicles.



## ACCOMPLISHMENTS & PLANNED PROJECTS

High Bridge in 1890 (Credit: William Henry Jackson. Library of Congress Prints and Photographs Online Catalogue) <http://lcweb2.loc.gov/service/pnp/det/4a30000/4a32000/4a32600/4a32659v.jpg> and <http://lcweb2.loc.gov/service/pnp/det/4a30000/4a32000/4a32600/4a32660v.jpg> (accessed September 9, 2014). High Bridge Pedestrian Bridge in 2004. (Credit: Michele N. Vulcan)

In support of DPR, the Division prepared a detailed scope of work for the comprehensive in-depth inspection of the bridge. Engineering consultants conducted this inspection, which was completed in the summer of 2006, at an estimated cost of \$2.5 million. The Division administered and supervised this work.

The \$61.73 million restoration of the bridge is being managed by the New York City Department of Design and Construction in partnership with DPR. The reopened High Bridge will be an essential link in New York City's expanding waterfront Greenway. It will allow Bronx residents to reach the Highbridge Pool and Recreation Center, and Manhattan residents to reach the Harlem River shoreline. Planned improvements will make the bridge more accessible and safe. The rehabilitation will follow historic preservation principles to restore the architectural details of this landmarked structure for public enjoyment.

Both the central steel span and the stone arches will be cleaned and repaired; the steel span will be repainted and the masonry structure will be repointed and strengthened. Architectural lighting will be installed beneath both spans. The brick paver walkway on top of the structure will be removed and reconditioned, new waterproofing and concrete will be installed, then the historic brickwork will be reinstalled. The aqueduct running beneath the structure will be repaired and stabilized. New lampposts and safety fencing will be installed and the original iron railing will be repaired. Barrier-free access ramps will be built on both sides of the bridge to allow access for the disabled. Three viewing platforms with bench seating will be installed along the length of the bridge.



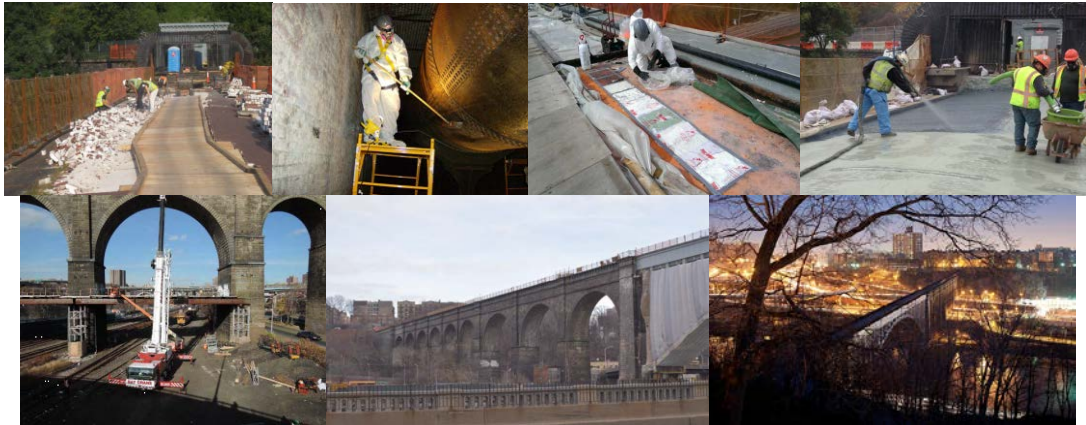
Project Overview. Rendering of the Restored High Bridge, View From the Bronx to Manhattan, View From Manhattan to the Bronx, and ADA Access Area.

The design of the restoration of the bridge was completed in December 2011. Construction began in August 2012. In March and April of 2013, the contractor began mobilization. Safety shield installation, and lead abatement and stone cleaning operations began. In May and June, brick paver removal and preservation operations and railing post restorations began. In July and August, safety fence and scaffolding installation, painting operations, and aqueduct pipe preservation were underway, along with repairing, repointing and cleaning of the masonry stone. Reconstruction of the brick walkway and ADA ramp excavation began. In September and October, installation of electrical lines and tie-rods were underway. In November and December, de-leading operations at the steep span were completed, bridge deck waterproofing operations and mast climber removal were in progress, and brick masonry work in the bridge attic began.

## ACCOMPLISHMENTS & PLANNED PROJECTS



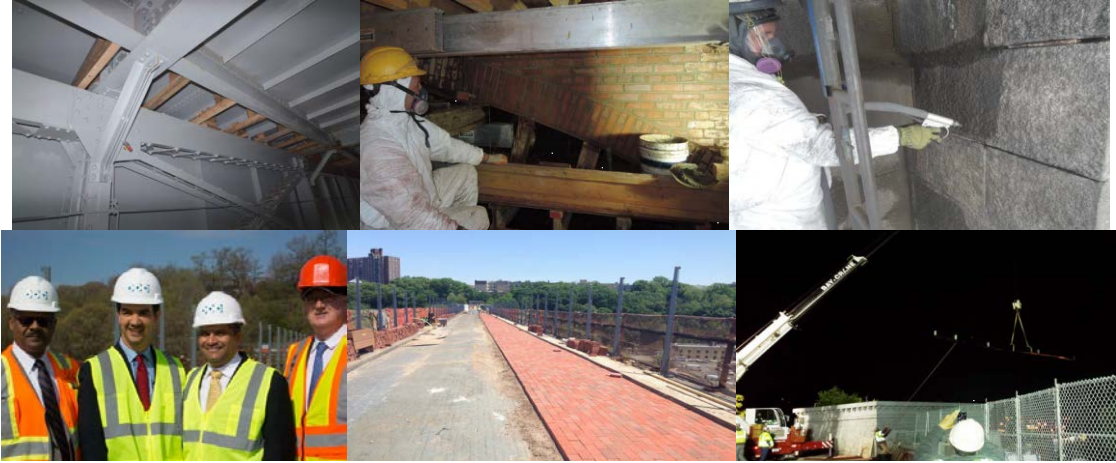
Northern and Southern Views of High Bridge in 2013. Winter 2013: Installation of Safety Shield Materials on the Walkway. Winter 2013: Safety Cables Installed on the Bridge. Early Spring 2013: Temporary Work Platform on the Bridge. Temporary Work Platform on Sedgwick And Undercliff Avenues. Spring 2013: Mast Climber and Lead Abatement Containment on the Bridge. Summer 2013: Brick Paver Removal. (Credit: NYCDDC)



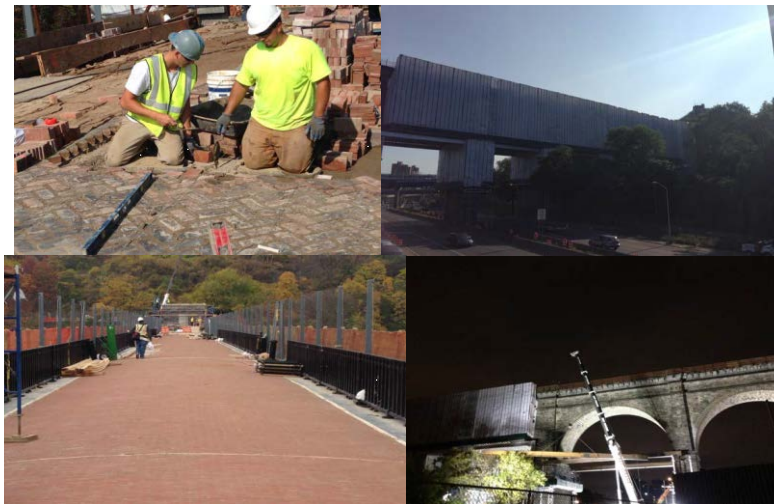
Summer 2013: Brick Paver Removal and Preservation. Fall 2013: Aqueduct Pipe Preservation. Reconstruction of the Walkway. Late Fall 2013: Water Proofing Operations on the Bridge Deck. Mast Climber Removal. Winter 2014: South View of the Bridge. (Credit: NYCDDC)

From January through April of 2014, brick and concrete spall repairs and steel repairs continued. Installation of underlayment pavers on bridge deck began in May and June, and the steel installation for the Manhattan and Bronx ADA ramps was completed. In July and August, waterproofing operations on the bridge and lead abatement and painting operations were completed. In November and December, paver installation on the bridge deck was completed. At the end of 2014, continuing work included: steel repairs, scaffold installation for masonry stone cleaning and repointing work on the bridge, Manhattan gatehouse rehabilitation, and historic railing and ADA ramp installation. Construction is expected to be complete in late May 2015, and the bridge is expected to reopen to the public in early June 2015.

## ACCOMPLISHMENTS & PLANNED PROJECTS



Winter 2014: Steel Stringer Installation. Spring 2014: Brick Repairs and Stone Cleaning. (Credit: NYCDDC) Site Visit in May 2014. From left: DDC Deputy Commissioner Eric McFarlane, Councilmember Ydanis Rodriguez, DDC Commissioner Feniosky Peña-Mora, and NYCDPR First Deputy Commissioner Liam Kavanagh. (Credit: Chappell Ellison - NYCDDC) Summer 2014: Brick Installation. ADA Ramp Steel Installation. (Credit: NYCDDC)



Summer 2014: Brick Installation. Containment System. Late Fall 2014: Completing Brick Installation. Scaffold Installation. (Credit: NYCDDC)

### HIGHLAND PARK PEDESTRIAN BRIDGE OVER PEDESTRIAN PATH (QUEENS)

The Highland Park Pedestrian Bridge, built in 1935, is a single span arch structure with a clear opening of 60 feet under the bridge. Unlike a conventional steel or concrete bridge structure, the main structure is a brick masonry arch, with wing walls and parapet walls consisting of stacks of random size rocks set in mortar. The height of the parapet walls from the roadway surface varies from two to four feet. The bridge, located inside Highland Park, spans a hiking trail, and carries pedestrian and bicycle traffic. The only motorized vehicles permitted on the bridge are emergency vehicles and Parks Department's maintenance vehicles. It is 27 feet wide with neither sidewalks nor shoulders.

A recent inspection revealed significant deterioration of the masonry arch. The project, currently in the final design phase, will include the rehabilitation of the existing brick masonry arch structure and the specialized wearing surface. The masonry will be cleaned and repointed in place. The asphalt roadway will be completely removed and the top of the arch will be excavated. This will allow for any necessary repairs on the top side of the arch and for the application of a reinforced

## ***ACCOMPLISHMENTS & PLANNED PROJECTS***

concrete saddle with a waterproofing membrane. The arch will then be backfilled and the roadway repaved. In addition, the existing lampposts on the bridge and approaches will be refurbished, an eight foot wide gravel path will be installed below the bridge, and the landscape will be restored with trees and shrubs. The bridge will be closed to all traffic and will be reconstructed in one stage. Construction is expected to begin in November 2015, and is expected to be complete in eighteen months.



Highland Park Bridge. Dirt Pathway Under Bridge. Under-Deck Cracks and Missing Bricks - North-East Side. Under-Deck Arch Wall Showing Efflorescence Along the Cladding Stone and Brick Arch. Inspecting the Bridge in December 2014.

### **METROPOLITAN AVENUE (FRESH POND) BRIDGE OVER LIRR -NY&ATL (QUEENS)**

This bridge is a two span structure built between 1914 and 1915. It spans over the Long Island Railroad (LIRR) Montauk Branch and carries the roadway that is part of the intersection of Metropolitan Avenue with Fresh Pond Road and the adjoining property of the former Mobil gasoline station which was acquired by the City. The bridge originally crossed two railroad tracks located in each span and oriented in the east-west direction. One of the southern railroad tracks was abandoned and the remaining track is used by freight trains. The two northern railroad tracks are still in service and are part of the Long Island Rail Road Montauk line. The Fresh Pond Road portion of the bridge carried two trolley tracks located in two central bays oriented in the northbound and southbound direction. The Metropolitan Avenue portion of the bridge carried two trolley tracks located 4 feet nine inches from the original bridge centerline.

The superstructure consists of concrete encased steel beams with a concrete deck and varying depths of asphalt wearing surface. The substructure consists of a reinforced concrete pier and gravity type plain concrete abutments and wing walls.

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The existing vertical clearance over LIRR tracks is 15 feet 9 inches. Per New York State Railroad Law Section 51-a (7), a minimum clearance of 22 feet is required over a railroad whenever a structure built prior to 1959 is to be reconstructed unless a waiver is granted by NYSDOT. Since a 22 foot clearance was not achievable due to the existing grades of the bridge being restricted by adjacent buildings and the constraint from an existing sewer line under the tracks, the waiver request was not granted by NYSDOT. However, NYSDOT agreed to a clearance of 20 feet 6 inches. In May 2012, NYCDEP conceptually accepted the modification of the existing sewer to achieve the requisite clearance of 20 feet 6 inches.

One alternative to achieve the required 20 feet 6 inches clearance is to lower the railroad tracks. The primary obstruction to lowering the railroad tracks is the existing 60" diameter combined sewer which runs along the centerline of Fresh Pond Road. The sewer crosses beneath the tracks and is approximately 3 feet below the top of rail. To lower the tracks, the combined sewer must be rerouted or reconfigured (or both).

In September 2012, the LIRR and NY Atlantic Railways agreed to have 17 feet 6 inches clearance as an immediate goal and 20 feet 6 inches as a future goal. In response to the LIRR waiver request made in December 2012, NYSDOT accepted LIRR waiver request of railroad 17 feet 6 inches above the top of rail, incorporating provisions for lowering the track to a clearance of 20 feet 6 inches in the future. After NYCDOT coordination with LIRR, the existing two span bridge will be converted to a single span bridge. A new north abutment will be constructed, filling the area between the existing central pier and the south abutment, and a new south abutment will be constructed near the existing central pier. The immediate goal is to design a bridge with 17.5 feet clearance and to make provision for achieving the 20.5 feet clearance in the future by lowering the railroad tracks and modifying the existing sewer. The proposed intersection geometry will provide improvements to turning movements for buses and trucks. New roadway pavement, sidewalks, curbs, American Disability Act (ADA) complaint accessible ramps, approach slabs, drainage, and lighting will be provided. A new utility bridge will be constructed on the southeast side of the new bridge parallel to Metropolitan Avenue for the relocation of water and gas mains. All private utilities will be relocated under the new bridge deck between girders. A new traffic signal will be provided at the intersection of Metropolitan Avenue and Fresh Pond Road. Construction is expected to begin in early 2017 and expected to be complete in late 2019.



Metropolitan Avenue Bridge in 2009. (Credit: NYSDOT) 2010 Inspection - Hands-On Inspection of A Pier. Obtaining a Steel Coupon Sample From a Stringer. February 2014: View of Plates on Left Sidewalk (Fresh Pond Road). September 2014: Spans 1 and 2 Right Concrete Parapet. (Parapet Credit: NYSDOT)



## ***ACCOMPLISHMENTS & PLANNED PROJECTS***

### **ROOSEVELT AVENUE BRIDGE OVER VAN WYCK EXPRESSWAY (QUEENS)**

The existing bridge is a two level dual-use steel viaduct consisting of 27 spans. The first level, which carries Roosevelt Avenue, consists of a plate girder floor beam system supported by steel columns, intermediate piers supporting a bascule span spanning over the Van Wyck Expressway, and end abutments. This level carries two lanes of vehicular traffic in each direction and pedestrian sidewalks on each side. The second level of the viaduct supports and carries the overhead NYC Transit Authority's #7 – Flushing line three track subway structure. It is an essential regional facility and truck route that links communities east and west over the Grand Central Parkway and provides access to Flushing Meadows Park, the National Tennis Center, and Citifield, home of the New York Mets.

The viaduct structure consists of 22 steel bents supporting longitudinal steel girders at the roadway and track level. The length of the east viaduct is approximately 284 feet and the length of the west viaduct is 809 feet. The overall length of the bascule and viaduct structures is 1400 feet. The bridge was originally built between 1925 and 1927. The original bridge had a double leaf bascule span, which was used as a draw bridge, providing clearance for boat traffic passing beneath. When the Van Wyck Expressway was built in the late 1950's and the river was no longer navigable, the bridge was permanently set in a closed position. Subsequently, major roadway modifications were performed in the early 1980's. Concrete deck repairs were performed in July, August, and October of 2003, June and July of 2004, April, May, June, and July of 2005, and June and July of 2006. In the summer of 2005, the When and Where contractor repaired red and yellow flag conditions caused by damage by over-sized trucks using the Van Wyck Expressway. Red-flagged steel shoring and yellow-flagged cracked stringer connection angles were repaired in the spring of 2008.

The project, currently in the final design phase, will include the construction of a new concrete-filled steel grid deck, rehabilitation of the existing east and west viaduct sections, bascule span, piers, abutments, and painting of the entire bridge. In addition, a new bicycle/pedestrian path will be constructed on the north and south sides of the bridge.



Roosevelt Avenue Bridge – Looking East. Existing and Proposed Bicycle/Pedestrian Path.

The lower level carrying Roosevelt Avenue will be reconstructed in three stages. Both vehicular and pedestrian traffic will be maintained throughout the construction of the bridge, with one lane in each direction.

This federally-funded project is currently in the final design phase with construction anticipated to start in summer 2015 and to be complete in August 2019.

## ACCOMPLISHMENTS & PLANNED PROJECTS



Roosevelt Avenue Bridge (#2240507) in 2002, 2004, and 2010. (Credit: NYSDOT) Aerial View.

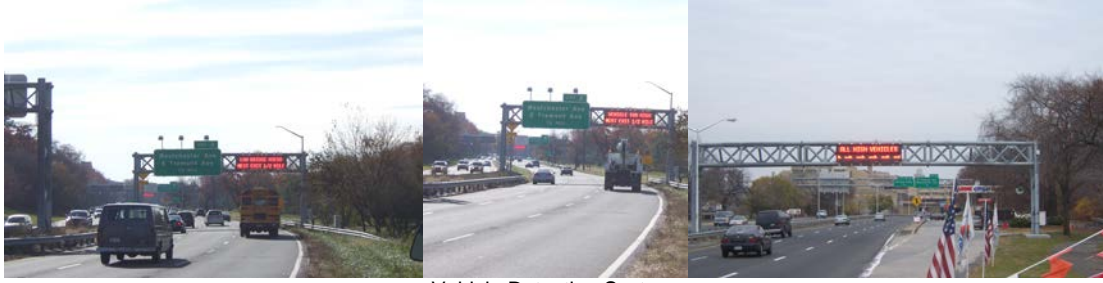
### WESTCHESTER AVENUE BRIDGE OVER THE HUTCHINSON RIVER PARKWAY (BRONX)

The bridge spans over the Hutchinson River Parkway and it supports the NYCT elevated subway structure of the Pelham Bay Line. Six of the transit columns are supported by the bridge girders. The bridge is located between Waters Place and Middletown Avenue. It has four travel lanes with parking lanes and sidewalks on both sides. This two span continuous multi-stringer bridge is supported by reinforced piers and abutments. It was built in 1940 by the Triborough Bridge and Tunnel Authority in conjunction with the construction of the Bronx-Whitestone Bridge approach. No major modifications to the bridge are recorded except for minor repairs at the south approach sidewalk and temporary flag repairs to bridge girders damaged by vehicle impacts in the southbound and northbound roadway. A project to install an ITS solution, which includes an overheight vehicle detection system that flashes signs directing vehicles identified as being over 9' in height to exit the parkway, was substantially completed on December 3, 2004. This Vehicle Height System, consisting of cameras, flash boxes, conduit, and power cabinet, that was erected in the early 2000's, is still attached to the bridge piers, girders and abutments but is not in working order. The contractor completed extra work associated with landscaping in the spring of 2006. The underdeck at both spans is currently covered by approximately 154 square feet of timber planking. In addition, the underdeck at span 1 is covered with approximately 18 square feet of steel wire mesh netting.



Westchester Avenue Bridge Elevation Left and Right in 2012. (Credit: NYSDOT) April 2014: Span 2 – Deteriorated Areas Shielded With Planks. Overheight Sensor Unit on the Hutchinson River Parkway. (Sensor Credit: Roly Parroco)

## ACCOMPLISHMENTS & PLANNED PROJECTS



Vehicle Detection System.

The Westchester Avenue Bridge's vertical clearance over the Hutchinson River Parkway is sub-standard. Due to the number of truck and bus vehicles that mistakenly enter the Hutchinson River Parkway, where commercial vehicles are not allowed, the fascia steel girders of the bridge have been severely impacted and damaged numerous times.



Damaged Bridge, Cargo Container, and Contractor Truck After An Over-Height Trailer Struck the Bridge in January 2012.

The rehabilitation of the bridge will include the replacement of the existing reinforced concrete deck slab with a new reinforced concrete deck, steel faced curbs, a new parapet wall and protective screenings, concrete sidewalks, rehabilitation of the damaged steel fascia girders, and replacement of the diaphragms and other bridge elements, including a new steel water main.

In March 2011, a value engineering study was conducted in which it was recommended that further studies of alternative options be performed to raise the bridge clearance through a shallower bridge structure and/or by raising the roadway profile above the bridge.

Following the recommendation of the value engineering study, a hazardous material field investigation of the bridge was conducted in May 2013 and a hazardous material report was issued in June 2013. The report included the results of asbestos, lead and other hazardous materials field investigations, including laboratory testing results.

An alternative analysis/feasibility report was prepared in August 2013 to review the recommendation options by the value engineering team. A preferred option was then selected and incorporated into the February 2014 bridge conceptual design report. NYC Transit was receptive to the preferred option in the April 3, 2014 meeting.

This rehabilitation project is proceeding with the preferred option, and is currently in final design. Construction is expected to begin in June 2016, and is expected to be complete in February 2019.

### **WHITESTONE EXPRESSWAY/VAN WYCK EXPRESSWAY (SB) TO CROSS ISLAND PARKWAY (EB) OVER ACCESS ROAD FROM WHITESTONE EXPRESSWAY/VAN WYCK EXPRESSWAY (QUEENS)**

The bridge is a multi-girder, single span, simply supported structure with a span length of 77 feet and is 24 feet wide curb to curb. There are two lanes (one way) on the bridge. The substructure consists of two gravity type concrete abutments. The west and east abutments of the existing bridge are a continuation of the abutments of the overhead bridge. Construction is expected to begin in August 2018, and is expected to be completed in 2020.

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Bridge (Lower Structure) in 2010. (Credit: NYSDOT) Bridge Detail. August 2013: Span 1 Underside of Deck from End Abutment, Looking Northwest - Areas of Spalled Concrete Deck Are Protected With Timber Planks. March 2014: Steel Plates on Wearing Surface.

### EAST 175<sup>TH</sup> STREET BRIDGE OVER METRO NORTH (BRONX)

The East 175<sup>th</sup> Street Bridge over Metro North was originally built in 1889 and it underwent reconstruction in 1938. The reconstruction work included a new steel superstructure, concrete deck slab and sidewalk in conjunction with repairs to the existing stone masonry substructure and relocation of various utilities. It is a single span multi-girder steel structure with a steel reinforced concrete deck, and it measures 61.68 feet long from abutment to abutment and 60 feet wide from parapet to parapet. Construction is expected to begin in 2019.



East 175<sup>th</sup> Street Bridge in 2002 and 2012. (Credit: NYSDOT) South Sidewalk.

### Design-Build

Design-Build contracts retain the same company for both design and construction on selected projects. It is evident that there are many advantages to the Design-Build program, including the use of one consolidated procurement rather than two or more, resulting in significant time savings; the ability to commence construction before design completion; the avoidance of project

## ACCOMPLISHMENTS & PLANNED PROJECTS

escalation costs as construction commences two or three years earlier than with the conventional design-bid-build method; minimization of design change orders; and better coordination between design and construction, as critical field issues are addressed expeditiously. In addition, the design is custom made and reflects the capabilities and strength of the specific contractor; the Department establishes a single point of contact for communicating its goals and objectives; and overall costs are reduced substantially.

NYCDOT is currently progressing these projects on a Design-Bid-Build basis until the legislation is passed in Albany allowing unconstrained use of this procurement method. NYCDOT may pursue projects utilizing Design-Build if a special case determination can be justified for a specific project.

### FDR DRIVE AT HOUSTON STREET OVERPASS (MANHATTAN)

The overpass consists of three bridge structures. The main bridge is a two-span reinforced concrete slab structure spanning over the FDR Drive's northbound and southbound roadways. Two approach ramp structures provide access to and from the FDR Drive northbound roadway and the main bridge. Each of these structures is also a reinforced concrete slab structure supported on longitudinal concrete walls that run adjacent to the FDR Drive's northbound roadway. These bridges were constructed circa 1953, and are thus almost 60 years old. On the main bridge, the superstructure slab is supported on bearing wall abutments continuously founded on piles, and on one pier at the center of the FDR Drive that consists of a steel cap beam supported on multi-steel columns continuously founded on piles. The structural slabs have asphalt overlays, and the main bridge has three sections of concrete sidewalks.

Project work will include the removal and replacement of the existing bridge superstructure, including deck slab, sidewalks, center median island, and parapets. The substructure (abutments and pier) will be modified at their top to support the new superstructure. Other rehabilitation work will include the removal of hollow and spalled underdeck concrete, cleaning and repair of corroded rebar, removal of asphalt overlay, installation of waterproofing membrane, installation of new signals and an ADA-compliant pedestrian ramp, and placement of new asphalt overlay over the existing deck slabs. The reconstruction of the main bridge will be performed in two main stages, with half the bridge being replaced at a time. The project is in the final design stage, and construction is expected to begin in fall 2015.



The Three Structures of the FDR Drive at Houston Street Overpass. (Credit: NYSDOT)

## ACCOMPLISHMENTS & PLANNED PROJECTS



2011: Main Bridge – Top of Deck Looking West. South Approach Ramp – Top of Deck Looking South. North Approach Ramp – Top of Deck Looking North.

### HARLEM RIVER DRIVE BRIDGE AT EAST 127<sup>TH</sup> STREET (MANHATTAN)

The Harlem River Drive Bridge over the ramp from East 127<sup>th</sup> Street is an eleven-span structure consisting of seven main spans of multiple steel stringers and concrete deck and four approach spans of reinforced concrete structural slabs supported by reinforced concrete girders and retaining walls. The bridge currently carries three traffic lanes in the southbound direction and two lanes plus a wide striped shoulder in the northbound direction. The parkway is not subject to truck traffic with the exception of emergency vehicles and school buses.

The existing bridge was designed and built by the Department from 1955 to 1958 as part of the Harlem River Drive Improvement Project from East 125<sup>th</sup> Street to East 132<sup>nd</sup> Street. The bridge is an eleven-span structure consisting of seven main spans of multiple steel stringers and concrete deck and four approach spans of reinforced concrete structural slabs supported by reinforced concrete girders and retaining walls. The bridge is owned and maintained by the Department; the rest of the Drive is owned by the New York State Department of Transportation.

This project includes over \$82 million in Federal funds. Construction will follow the on-line bridge replacement with auxiliary exit and entrance lanes and left-lane exit to Second Avenue. It involves the replacement of the existing 11 span bridge and the reconstruction of the Harlem River Drive between the Willis Avenue and Third Avenue Bridges, in addition to various highway improvements. The proposed replacement structure will consist of two adjacent bridges, with the bridge located to the west dedicated to southbound traffic and the bridge located to the east dedicated to northbound traffic. The new structures will be approximately 1,027 feet long.

The viaduct currently serves approximately 79,000 vehicles per day. This area currently has 40 times the State average number of accidents. Two features of the viaduct contribute to the accidents. First, the hump as the Harlem River Drive passes over East 127<sup>th</sup> Street limits drivers' visibility; vehicles approach the hump at a higher speed only to find slow moving vehicles at the other side of the hump, and too often they are not successful in decelerating or stopping their vehicles on time to prevent an accident. Second, there are weaving movements as vehicles exiting the Third Avenue Bridge enter the southbound Harlem River Drive in the right but try to immediately pull to the left in order to continue their travel further south on the Harlem River Drive and the FDR Drive. At the same time and within the same stretch of highway, vehicles that are in the left lanes of the southbound Harlem River Drive immediately north of the Third Avenue Bridge try to pull to the right in order to exit at Second Avenue. The lack of an appropriate weaving distance is the root of many of the accidents in the area. The project will also allow at-grade access for a future Park/Promenade to be developed by the Department of Parks at 127<sup>th</sup> Street between the Harlem River Drive and the Harlem River. A Notice to Proceed for the reconstruction of this bridge was issued to the contractor with a start date of November 10, 2014. Construction is expected to be complete in fall spring 2018.

## ACCOMPLISHMENTS & PLANNED PROJECTS



Harlem River Drive Bridge at East 127<sup>th</sup> Street.



Rendering of New Harlem River Drive Bridge.



Looking East at the 127<sup>th</sup> Street Off-Ramp: Current and Proposed View. Looking East at 2<sup>nd</sup> Avenue: Current and Proposed View. Looking South From 3<sup>rd</sup> Avenue Bridge: Current Harlem River Drive and 2<sup>nd</sup> Avenue Exit and Proposed Harlem River Drive With Left Lane Exit to 2<sup>nd</sup> Avenue.

### ***Component Rehabilitation***

**CARROLL STREET BRIDGE OVER GOWANUS CANAL (BROOKLYN), 5<sup>TH</sup> AVENUE BRIDGE OVER GREENWOOD CEMETERY (BROOKLYN), BEDFORD AVENUE BRIDGE OVER LIRR BAY RIDGE (BROOKLYN), BROOKLYN-QUEENS EXPRESSWAY BRIDGE OVER ADAMS STREET (NB) (BROOKLYN), BROOKLYN-QUEENS EXPRESSWAY BRIDGE OVER ADAMS STREET (SB) (BROOKLYN), BELT PARKWAY BRIDGE OVER BEDFORD AVENUE (BROOKLYN), 4<sup>TH</sup> AVENUE BRIDGE OVER BELT PARKWAY (BROOKLYN), HILL DRIVE BRIDGE (CLEFT RIDGE SPAN) OVER PEDESTRIAN PATH SOUTH OF BOATHOUSE (BROOKLYN), CROWN STREET BRIDGE OVER FRANKLIN SHUTTLE (BROOKLYN), AND UNION STREET BRIDGE OVER BROOKLYN-QUEENS EXPRESSWAY (BROOKLYN)**

## ACCOMPLISHMENTS & PLANNED PROJECTS

A Notice to Proceed for the component rehabilitation of these bridges was issued to the contractor with a start date of July 23, 2012.

In October 2012, New York was devastated by Superstorm Sandy. During the period immediately following the storm, construction efforts across the city were focused on emergency response and storm clean-up. Work associated with this contract was stopped for an extended period of time. By the end of 2013, five of the ten bridges in the contract were substantially completed, two were underway and construction on the remaining three commenced in 2014.

The Carroll Street and 5<sup>th</sup> Avenue Bridges were substantially completed on July 9, 2013, the Bedford Avenue Bridge over LIRR on November 6, 2013, and the Brooklyn-Queens Expressway Bridges over Adams Street (northbound and southbound) on December 3, 2013.

The Belt Parkway Bridge over Bedford Avenue is a three span steel stringer structure. The bridge carries three travel lanes in each direction. There is a shoulder and a safety walk on each side of the bridge. The concrete median that divides the eastbound and westbound traffic has guide railing on both sides. The scope of rehabilitation work included the following: replace asphalt concrete over expansion joints and seal cracks in asphalt overlay; clean and paint replaced or rehabilitated steel items; replace seals at abutments; replace deteriorated structural steel; repair concrete deteriorated areas; clean masonry; apply an anti-graffiti protective coating on abutments, wingwalls and piers; and clean scuppers. The Belt Parkway Bridge over Bedford Avenue was substantially completed on July 15, 2014.



Replacing Deteriorated Fascia Brackets From the North and South Girders of the Belt Parkway Bridge Over Bedford Avenue. Temporary Supports Were Installed at the Bracket Location. Bracket was Removed. New Brackets Were Installed and Painted. (Credit: Vadim Sokolovsky)

The 4<sup>th</sup> Avenue Bridge over the Belt Parkway is a two span concrete rigid frame. The bridge carries a travel lane in each direction, divided by a concrete median. There are no parking lanes on the bridge and approaches. The west sidewalk is wide and the east sidewalk is narrow. There is a concrete parapet on each side of the bridge. The scope of rehabilitation work included the following: remove and the existing asphalt concrete on bridge and approaches; clean pressure relief joints; repair concrete deteriorated areas at sidewalks and median and apply a sealing protective coating; repair concrete deteriorated areas at abutments, pier, and underdeck; and clean masonry surfaces and apply an anti-graffiti protective coating. The 4<sup>th</sup> Avenue Bridge was substantially completed on June 27, 2014.



4th Avenue Bridge. March 2010: Right Elevation. (Credit: NYSDOT)

The Hill Drive Bridge (Cleft Ridge Span) Bridge is a one span semi-circular arch type structure. The bridge carries one travel lane in each direction. There are no parking lanes on the bridge. The scope of rehabilitation work included the following: repair the asphalt wearing surface; repair spalled and cracked concrete at the wingwalls; clean the bridge and provide an anti-graffiti



## ACCOMPLISHMENTS & PLANNED PROJECTS

protective coating; and restore the under drain system behind the bridge fascias. The Hill Drive Bridge (Cleft Ridge Span) Bridge was substantially completed on November 5, 2014.



Hill Drive Bridge (Cleft Ridge Span) Bridge. May 2014: Tiles on Underside of Span 1. Top of Bridge.

The Crown Street Bridge is a 3 span bridge that carries one travel lane and one parking lane in each direction. The bridge has protective screening and a bridge railing on the south side. There is a building adjacent to the bridge north fascia. The scope of rehabilitation work included the following: seal cracks in the concrete overlay; replace seals above abutments; repair, clean, and apply an anti-graffiti protection coating to the abutments, piers, and crashwalls; and clean existing gutters. The Crown Street Bridge was substantially completed on August 20, 2014.



Crown Street Bridge. Right Elevation in 2011. (2011 Credit: NYSDOT)

The Union Street Bridge is a two span steel continuous stringer structure. The bridge carries eastbound two travel lanes. There is an unmarked parking lane on each side of the bridge. There is a sidewalk, a railing and protective screening on each side of the bridge. The scope of rehabilitation work included the following: remove and replace concrete overlay; replace seals at abutments; repair concrete deteriorated areas; replace corroded rivets; paint structural steel; clean abutments and pier walls; and restore bearings. The Union Street Bridge was substantially completed on November 13, 2014.



Union Street Bridge. March 2012: Right Elevation. Timber Shielding in Bay 2 of Span 1. (2012 Credit: NYSDOT)

**MOSHULU PARKWAY BRIDGE OVER CONRAIL (ABANDONED), LEGGETT AVENUE BRIDGE OVER AMTRAK, EAST 162<sup>ND</sup> STREET BRIDGE OVER METRO NORTH RR HAR, EAST 165<sup>TH</sup> STREET BRIDGE OVER METRO NORTH RR HAR,**

## ***ACCOMPLISHMENTS & PLANNED PROJECTS***

### **EAST 187<sup>TH</sup> STREET BRIDGE OVER METRO NORTH RR HAR, SOUTHERN BOULEVARD BRIDGE OVER EAST FORDHAM ROAD, GRAND CONCOURSE BRIDGE OVER EAST 167<sup>TH</sup> STREET, EAST 180<sup>TH</sup> STREET BRIDGE OVER BRONX RIVER, RIVERSIDE DRIVE BRIDGE OVER WEST 138<sup>TH</sup> STREET, RIVERSIDE DRIVE BRIDGE OVER WEST 145<sup>TH</sup> STREET, AND THE PULASKI BRIDGE BICYCLE PATH (MCGUINNESS BOULEVARD OVER NEWTOWN CREEK)**

A Notice to Proceed for the component rehabilitation of these 10 bridges in the Bronx and Manhattan, as well as the creation of a protected bicycle path on the Pulaski Bridge was issued to the contractor with a start date of November 3, 2014.

The Mosholu Parkway Bridge over Conrail (Abandoned) was built in 1939. It is a single span concrete arch bridge. There is a concrete parapet along both the north and south fascia of the bridge. The existing bridge geometry consists of two travel lanes and a shoulder in each direction, divided by a 4'-0" wide concrete median barrier, as well as a 15'-wide asphalt path for golf carts and pedestrians on the south side of the bridge. The scope of rehabilitation work shall include the following: removing and replacing the asphalt overlay, waterproofing, pavement striping, north fascia barrier and median barrier, corrugated guide rail transition, and wingwall joint filler; removing, storing and reinstalling lighting lampposts on north fascia barrier and replacing luminaires with new luminaires; installing a temporary lighting system; excavating, backfilling and paving the local depression in the asphalt golf cart path; repairing chain link fence section and concrete on the underdeck and abutment walls; installing weepholes in the abutments and preformed joint seal in the concrete parapet; cleaning and flushing catch basins; and removing graffiti by power wash and applying anti-graffiti protective coating. Vehicular and pedestrian access will be maintained during the estimated 5-month rehabilitation period.



Mosholu Parkway Bridge over Conrail (Abandoned).

The Leggett Avenue Bridge over Amtrak was built in 1906. It is a three span steel truss. There is a corrugated metal fence along both the east and west fascias of the bridge. The existing bridge geometry consists of two travel lanes and a sidewalk in each direction, divided by a 4'-10" wide concrete median barrier. The scope of rehabilitation work shall include the following: removing and replacing deck joint, deck joint seals and portions of the concrete sidewalk; repairing concrete on the abutment and approach slab; repairing structural steel members and existing fuse box; installing pavement striping; and cleaning and painting steel surfaces and bottom of stay-in-place form. Vehicular and pedestrian access will be maintained during the estimated 5-month rehabilitation period.

## ACCOMPLISHMENTS & PLANNED PROJECTS



Leggett Avenue Bridge over Amtrak.

The East 162<sup>nd</sup> Street Bridge over Metro North was built in 1888. It is a single span steel jack arch bridge with built-up steel beams encased in concrete. There is a fence along both the north and south fascia of the bridge as well as a non-standard decorative bridge rail along the north fascia. The existing bridge geometry consists of one travel lane, a parking lane and a sidewalk in each direction. The scope of rehabilitation work shall include the following: locally removing and replacing the asphalt and concrete overlays and sidewalk; installing pavement striping; repairing guide railing, concrete on the underdeck and abutment, and cracks in the asphalt overlay and sidewalk; cleaning and painting steel surfaces locally; resealing sidewalk joints; and repointing stone masonry. Vehicular and pedestrian access will be maintained during the estimated 4-month rehabilitation period.



East 162<sup>nd</sup> Street Bridge over MNRR.

The East 165<sup>th</sup> Street Bridge over Metro North was built in 1897. It is a single span steel jack arch bridge with built-up steel beams encased in concrete. . A chain link fence runs in front of steel railing atop both the west and east fascia of the bridge. The existing bridge geometry consists of one travel lane in each direction on East 165<sup>th</sup> Street, and one travel lane, a turning lane and a sidewalk in each direction on Melrose/Webster Avenue. The scope of rehabilitation work shall include the following: locally removing and replacing the asphalt overlay and sidewalk; repairing the concrete underdeck; cleaning and painting steel surfaces; resealing sidewalk joints; installing new multi-rotational bearings at the south abutment; partially removing and replacing the bridge seat at the new bearing locations; installing a temporary support system; and performing jacking operations. Vehicular and pedestrian access will be maintained during the estimated 8-month rehabilitation period.



East 165<sup>th</sup> Street Bridge over MNRR.

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The East 187<sup>th</sup> Street Bridge over Metro North was built in 1889. It is a single span steel jack arch bridge with built-up steel beams encased in concrete. The bridge has a chain link fence and a non-standard decorative bridge rail along both the north and south fascia. The existing bridge geometry consists of one 17' travel lane and an 11' sidewalk in each direction. The scope of rehabilitation work shall include the following: removing and replacing concrete overlay and waterproofing membrane, concrete sidewalk, corrugated guide rail, bridge railing, chain link fence wire mesh, and steel faced curb and handicap ramp at sidewalk corners; sealing the deck overlay; repairing the concrete underdeck; and cleaning and painting the steel surfaces locally. Vehicular and pedestrian access will be maintained during the estimated 5-month rehabilitation period.



East 187<sup>th</sup> Street Bridge over MNRR.

The Southern Boulevard Bridge over East Fordham Road was built in 1962. It is a two span concrete arch bridge with stone masonry facing on the abutments and spandrel walls. The bridge has a concrete parapet with stone facing topped with a non-standard decorative bridge rail at both the east and west fascia. The existing bridge geometry consists of two travel lanes, a turning lane and a sidewalk in each direction, divided by a 4'-3" wide concrete median. The scope of rehabilitation work shall include the following: removing and replacing asphalt overlay, waterproofing membrane and pavement striping; repairing bridge railing, light fixtures and concrete on the underdeck and sidewalk; resealing sidewalk joints and vertical fascia joint at abutment; repointing and repairing cracks in stone masonry; installing weep holes in the underdeck and guide railing; and cleaning fascia stone masonry and catch basins. Vehicular and pedestrian access will be maintained during the estimated 5-month rehabilitation period.



Southern Boulevard Bridge over East Fordham Road.

The Grand Concourse Bridge over East 167<sup>th</sup> Street was built in 1923. It is a two span steel girder bridge. The bridge has a concrete sidewalk and concrete parapet topped with a chain link fence at each fascia. The existing bridge geometry consists of two travel lanes and a turning lane in each direction on the Grand Concourse, and one travel lane, a parking lane and a sidewalk in each direction on the Grand Concourse service road. The overall structure extends several blocks to the north and south of the Grand Concourse where it carries a two-aisle parking area between the eastbound and westbound ramp lanes of East 167<sup>th</sup> Street. There is an NYCTA subway station under the Grand Concourse. Both the subway station and the railroad tracks are above East 167<sup>th</sup> Street. The subway station structures are not included in the scope of the bridge project. The scope of rehabilitation work shall include the following: removal and

## ACCOMPLISHMENTS & PLANNED PROJECTS

replacement of asphalt overlay; repairing concrete on the underdeck, abutments, piers, wingwalls and sidewalks; repairing underdeck light fixtures and drain pipe; resealing sidewalk and parapet joints; grouting the gap below the parapet curb along the pavement; and removing graffiti by power wash and applying anti-graffiti protective coating. Vehicular and pedestrian access will be maintained during the estimated 4-month rehabilitation period.



Grand Concourse Bridge over East 167<sup>th</sup> Street.

The East 180<sup>th</sup> Street Bridge over Bronx River was built in 1925. It is a single span concrete arch bridge with stone masonry facing. The bridge has a parapet at both the north and south fascia. The existing bridge geometry consists of one travel lane, a parking lane and a sidewalk in each direction; the sidewalks on both sides are protected from the roadway by a concrete barrier. The scope of rehabilitation work shall include the following: replacing pedestrian railing; repairing concrete underdeck, crack, spall and joint seal in concrete barrier, and the retaining wall at the northwest corner of the bridge; resealing sidewalk joints; repointing stone masonry and stone coping mortar joint; cleaning drain holes in the concrete barrier; removing a tree from the south fascia and northwest retaining wall; and removing graffiti by power wash and applying anti-graffiti protective coating. Vehicular and pedestrian access will be maintained during the estimated 4-month rehabilitation period.



East 180<sup>th</sup> Street Bridge over Bronx River.

The Riverside Drive Bridge over West 138<sup>th</sup> Street was built in 1920. It is a single span concrete arch bridge with stone masonry facing on the abutments and spandrel walls. There is a stone parapet on the east and the west side of the bridge. The existing bridge geometry consists of two travel lanes and a parking lane in each direction; the bridge also contains a sidewalk on the east side and an entrance to Riverbank State Park on the west side. The scope of rehabilitation work shall include the following: removing and replacing the asphalt overlay; repairing granite and brick pavers and concrete on the underdeck and sidewalk; repointing and repairing cracks in stone masonry joints; resealing underdeck joints; installing weepholes in the concrete underdeck; installing pavement striping; removing graffiti by power wash and applying anti-graffiti protective coating; cleaning and painting steel staircase railing and bollards; and replacing lighting fixture and refurbishing existing fuse box. Vehicular and pedestrian access will be maintained during the estimated 4-month rehabilitation period.

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Riverside Drive Bridge over West 138<sup>th</sup> Street.

The Riverside Drive Bridge over West 145<sup>th</sup> Street was built in 1930. It is a single span concrete arch bridge with stone masonry facing on the abutments and west spandrel wall. There is only one fascia on this bridge; the east side of the arch bridge is a filled backwall. There is a stone parapet on the west side of the bridge. The existing bridge geometry consists of two travel lanes and a parking lane in each direction; the bridge also contains an entrance to Riverbank State Park on the west side. The scope of rehabilitation work shall include the following: clearing and grubbing; removing and replacing the asphalt overlay, concrete overlay, waterproofing membrane and granite and brick pavers; repairing concrete on the underdeck; repointing and repairing cracks in stone masonry joints; resealing underdeck joints; installing pavement striping; removing graffiti by power wash and applying anti-graffiti protective coating; removing and resetting steel gate; and cleaning and painting bollards. Vehicular and pedestrian access will be maintained during the estimated 4-month rehabilitation period.



Riverside Drive Bridge over West 145<sup>th</sup> Street.

Bicycle use has grown at an unprecedented rate over the last five years in New York City. Currently, the Pulaski Bridge, which connects Greenpoint, Brooklyn with Long Island City, Queens, merges pedestrian and bicycle traffic into a shared travel lane creating dangerous conditions for both pedestrians and bicyclists. The Pulaski Bridge project will convert one southbound car lane (between Jackson Avenue in Queens and Eagle Street) on the bridge into a protected bicycle lane, giving more room to pedestrians on what is now a shared-use path and calming traffic headed toward McGuinness Boulevard in Brooklyn. A \$2.5 million Federal Transportation Enhancements grant awarded by the State will cover some of the \$4.2 million costs. The new pathway is expected to open in late 2015.

Opened in 1954 and rebuilt in 1994, the Pulaski Bridge is a 44 span bascule drawbridge that opens about 400 times a year, mostly during low tides between October and April for barges delivering heating oil to a facility on Newtown Creek. The opened drawbridge cannot support the weight of an additional concrete barrier, so in the middle of the bridge, the project will eliminate the barrier that separates the current bicycling and walking path from traffic. On this stretch, pedestrians and cyclists will have physical (metal) separation from traffic, but not between each other. Along other sections of the bridge, there will be two concrete barriers, separating the bikeway from both car traffic and pedestrians. The scope of work will also include installing impact attenuation devices at breaks in barrier system; replacing the finger joint at the center break of the bridge with a bicycle friendly joint; balancing the bascule leaves to accommodate the load of the new barrier; and installing pavement markings and signs for the new bicycle path.

## *ACCOMPLISHMENTS & PLANNED PROJECTS*

The project will involve nighttime and midday car lane closures, but bicycle and pedestrian access to the bridge will be maintained at all times during construction.



Existing and Planned Condition.

## ACCOMPLISHMENTS & PLANNED PROJECTS

### Engineering Review and Support

#### IN-HOUSE DESIGN

In-House Design staff prepare plans and specifications for bridge replacement/rehabilitation projects that enable the Division to restore bridges considered “structurally deficient” to a “very good” condition rating. This unit handles urgent Division projects, as well as special projects under construction by the Bureau of Bridge Maintenance, Inspections and Operations.

The unit completed the design of the Bryant Avenue Bridge over Amtrak and CSXT in the Bronx. This bridge is currently under construction and is scheduled to be completed in early 2016. This is a one span structure constructed in 1908, with a span length of 90 feet. This project includes replacement of the steel superstructure, bearings, approaches, water mains, and rehabilitation of both abutments. The proposed superstructure will consist of a reinforced concrete deck over prestressed concrete adjacent box beams. The two existing water mains will be removed, and replaced with two new pipes. Both water mains will be installed on top of the north sidewalk in a fenced-off area. Six existing Con Edison electrical conduits will be removed from the bridge.

Design also continued for the rehabilitation of the Henry Hudson Parkway Viaduct from West 72<sup>nd</sup> Street to West 82<sup>nd</sup> Street and the Henry Hudson Parkway Viaduct from West 94<sup>th</sup> Street to West 98<sup>th</sup> Street. The rehabilitation work will include the repair or replacement of various deteriorated structural steel members, concrete deck, abutments, and the retaining walls, as well as the complete painting of the substructure and superstructure steel. Construction work on these viaducts is expected to begin in fiscal years 2016 and 2017.

The unit continued the preliminary design for the replacement of the Union Turnpike Bridge over the Cross Island Parkway in Queens. This is a two span rigid frame structure constructed in 1939. The entire bridge will be removed and replaced at the same location. Several alternatives for the new bridge are currently being investigated. Construction is expected to begin in fiscal year 2021.

The unit also started the design for the rehabilitation of the East 169<sup>th</sup> Street Bridge and the East 180<sup>th</sup> Street Bridge, both over Metro North Railroad in the Bronx. Construction for both bridges is scheduled to start in fiscal year 2019. As the designer of the Belt Parkway Bridge over Paerdegat Basin, this unit was involved in the construction support services for the entire duration of construction.



August 2014: In-House Design Engineers Inspecting the Union Turnpike Bridge over Cross Island Parkway – Assistant Civil Engineer Leonid Sagalovskiy, City Planner Ristina SekullaNessel, and Civil Engineer Edvard Jeamgocian. (Credit: Paul Schwartz) In-House Design Engineers Inspecting the East 169<sup>th</sup> Street Bridge over Metro North Railroad – Civil Engineer Gregory Novofastovsky, Director of In-House Design Ferdinand John, Civil Engineers Kamran Sikandar and Lev Gold, Assistant Civil Engineer Elena Marresova, Civil Engineer Kirolos Dimian, and Assistant Civil Engineer Leonid Sagalovskiy.

This unit also handled the following emergency project that required expeditious response by the Division: the design of a collision protection beam attached to the north fascia of the park and



## ***ACCOMPLISHMENTS & PLANNED PROJECTS***

promenade bridge over the FDR Drive southbound roadway to protect the bridge's superstructure from strikes by illegal trucks on the parkway. The installation of protection beam was completed in fall 2014.

In-House Design's Electrical Group reviews and/or prepares contract documents for all electrical and street lighting work on all projects on the Division's Capital Program. Some of the contracts reviewed during 2014 included the Belt Parkway Bridge over Mill Basin; emergency contract for the restoration of electrical and mechanical systems of the Metropolitan Avenue Bridge over English Kills; emergency contract for the restoration of electrical and mechanical systems for 12 movable bridges; and the emergency contract for the restoration of tunnel systems at the Battery Park and West Street Underpasses.

### **ENGINEERING SUPPORT**

#### **BRIDGE PROJECT SPECIFICATIONS**

In 2014, the Specifications Unit of the Engineering Support Section prepared and/or reviewed contract proposal books and/or specifications for 18 contracts, including 14 bridge rehabilitation and new construction/reconstruction contracts and 4 component rehabilitation contracts, in addition to replying to specification requests for 8 on-going construction projects. Five of the above contracts totaling approximately \$274 million in construction costs were approved by the Law Department and advertised for bid. 6 contracts were awarded for construction in 2014 and 3 are waiting for award.

Notable among the construction contracts prepared and /or reviewed, advertised and sent for bid were: the component rehabilitation of nine bridges citywide, Belt Parkway Bridge over Mill Basin, Harlem River Drive over Ramp at East 127<sup>th</sup> Street, the preventive maintenance of the four East River Bridges, Emergency Contract for Metropolitan Avenue Bridge over English Kills, the 10 Culverts Project in Staten Island, Emergency Contract for Battery Park Underpass and West Street Underpass, and the Emergency Contract for 12 movable bridges.

The unit also maintains the City and federal boiler plate received from DOT Legal and updates R-pages (revisions to NYSDOT Standard Specifications) as required by the Guidelines for Preparation of Bridge Construction Contract Proposal Book and advises Agency Divisions and consultants on the preparation of contract proposal books and construction contract related issues.

#### **CONVERSION OF DIVISION ENGINEERING ARCHIVES**

The Records Management Unit converted 165,429 TIFF (Tag Image File Format) drawings to PDF (Portable Document Format) format and completed the indexing of 139,944 drawings. Some 200,000 TIFF drawings will be converted to PDF format.

The switch to electronic media and server-based archiving will save money on drawing submissions as well, and will lead to the establishment of a unified electronic database for bridge archives. Digitizing documents and storing them online, where they are easy to access and print, will simplify contract submission process and cut project costs in a long run.

The Records Management unit also reviewed and approved as-built drawings and contract drawings for 21 contracts in 2014, including Williamsburg Bridge, Macombs Dam Bridge, Manhattan Bridge, Harlem River Drive over Ramp at East 127<sup>th</sup> Street, Bryant Avenue Bridge over Amtrak and CSX, component rehabilitation of twelve bridges citywide, St. George Ferry Terminal Ramp Project, Wards Island Pedestrian Bridge, Shore Road Circle Bridge, Metropolitan Avenue Bridge, Claremont Parkway Bridge, and the 145<sup>th</sup> Street Bridge.

## ***ACCOMPLISHMENTS & PLANNED PROJECTS***

### **SURVEYING**

Unit staff monitored eight bridges in 2014: Depot Place Bridge over Conrail Yard, Third Street Bridge over Gowanus Canal, Pelham Parkway Bridge, Stone Arch Bridge in Central Park, Ninth Street Bridge over Gowanus Canal, 17<sup>th</sup> Avenue Pedestrian Bridge over Belt Parkway, Footbridge over Clove Lake, City Island Bridge over Eastchester Bay, and the retaining stone wall at Douglas Road.

### **ENGINEERING REVIEW**

#### **MACY'S THANKSGIVING DAY PARADE**

As in past years, the staff of the Engineering Review Section actively participated in the 2014 Macy's Thanksgiving Day Parade. Months before the parade, the engineers reviewed the balloon specifications and flight analyses. A balloon is classified as large if it is larger than 5,000 cubic feet. However, the balloons in the parade cannot be taller than 70 feet, wider than 40 feet, or longer than 78 feet. This project was coordinated with Macy's and various City agencies such as City Hall, NYPD, DOB, and OEM.

#### **CRP/EXTELL PARCEL H PROJECT**

The CRP/Extell Parcel H, LP project (Riverside Drive between 59<sup>th</sup> and 72<sup>nd</sup> Streets) includes the construction of seven new bridges, a ramp, two relieving platforms, and connector roads along Riverside Drive as a part of the residential and commercial development over the former Penn Central Rail Yard. The project also includes a half tunnel section in what was formerly known as the Miller Highway Tunnel. When completed, the infrastructure network will be transferred to DOT for maintenance. The Division is providing engineering review of the design drawings, as well as quality assurance inspections, to ensure the developer's compliance with DOT's construction and design standards. The bridges are substantially completed and open to traffic. The first phase of construction for the half tunnel section is complete and phase two is in progress.

### **RETAINING WALLS**

In May 2005, the Department started a program for the periodic inspection of City-owned retaining walls. The City currently owns 634 retaining walls. Those retaining walls were built during the interstate construction program between the 1940's and 1970's and are an important part of the city's street infrastructure. However, some of them are approaching the end of their service lives and are falling into poor condition due to various factors such as spalling/cracking of concrete, loosened mortar joints, broken stone masonry, falling coping stones, deteriorated joints, leakage through the walls due to improper drainage arrangements (clogged weep holes), bulging of walls due to hydrostatic pressure build-up on the back of the walls, and many other problems. In order to protect the infrastructure they support, the retaining walls require regular inspections and monitoring, and depending upon the condition of the walls, rehabilitation/replacement is required. Since 2005, 17 retaining walls have completed rehabilitation/replacement, and 18 retaining walls are in various stages of design and construction. The retaining walls which are in fair to poor condition will be in a capital program for future rehabilitation.

## ACCOMPLISHMENTS & PLANNED PROJECTS



Retaining Walls: Southeast Corner of West 108<sup>th</sup> Street and Riverside Drive. Left Side of Ramp From Riverside Drive to George Washington Bridge. Irwin Avenue. Cross Island Parkway Southbound Before 100<sup>th</sup> Avenue. Cooper Avenue.

### OVERWEIGHT TRUCK PERMIT REVIEWS

The Overweight Truck Permit Unit receives an average of 100 permit applications per week for overweight/over-dimensional trucks, self-propelled cranes, and occasional superload moves from utility companies crossing City-owned bridges, including critical bridges such as the Manhattan and Ed Koch Queensboro Bridges. Most of the permit requests must be reviewed and approved on the same day.

### BRIDGE SEISMIC DESIGN AND RETROFITTING

The seismic retrofitting of bridges in New York City is part of the inspection and rehabilitation program mandated by Congress and administered by the FHWA through the local authorities. During the period of 1993 to 1996, four major bridge owners in the New York City area (NYCDOT, NYSDOT, MTA, and the Port Authority of New York and New Jersey) retained seismologists to study hard rock seismic ground motions. The rock motions generated by these studies differed from each other and from the AASHTO spectrum as modified by NYSDOT. The differences were such that the resulting retrofit costs varied widely, depending upon which motions were adopted. To resolve this issue, NYCDOT, in association with NYSDOT and the FHWA, retained a consultant to assemble an expert panel to develop recommendations for rock motions that would be adopted uniformly by the New York City region. The panel consisted of a team of six internationally recognized experts in the fields of seismology, geology, earthquake engineering, ground motion, and geotechnical studies. There were several brainstorming workshops held in New York, where the senior officials from NYCDOT, NYSDOT, and the FHWA provided their input to the panel members.

The expert panel formulated recommendations regarding rock motions and corresponding time histories. Subsequently, the consultant derived soil generic response spectra, based on the hard rock motions and NEHRP amplification factors. The consultant also established bridge performance criteria to be used for critical, essential or other bridges undergoing structural analyses. The recommendations are described in the report entitled "New York City, Seismic Hazard Study and its Applications, Final Report, December 1998." This report is now extensively used by NYCDOT, NYSDOT, the FHWA, their consultants, and other agencies in the New York

## ***ACCOMPLISHMENTS & PLANNED PROJECTS***

area for bridge projects. Thus, NYCDOT's leading role and efforts to establish ground motion standards have brought uniformity in seismic design to the New York City area.

In 2002, the consultant convened a second panel of seismologists to update the 1998 Hazard Study and associated rock motions. On June 3, 2004, after the USGS national hazard maps were adopted by NEHRP, in a meeting attended by NYCDOT, NYSDOT and FHWA, it was unanimously agreed to adopt the new hard rock ground motions recommended by the panel of seismologists.

Following the adoption of the very hard rock motions, the consultant started the preparation of a new edition of the NYCDOT Seismic Design Guidelines for Bridges. Data from geotechnical bridge studies performed within the five boroughs of NYC were compiled. A series of generalized subsurface soil and bedrock profiles were developed to be representative of the range of soil profiles, overburden thickness, and rock types found within NYC. A fully probabilistic approach, utilizing Random Vibration Theory (RVT) in conjunction with the new hard rock ground motions, (from the 2002 Hazard Study) and the generalized NYC subsurface profiles, was used to develop vertical and horizontal Uniform Hazard Spectra (UHS), which, in turn, served as the starting point to derive design rock and soil response spectra. The method allowed computation of soil UHS, while preserving the hazard level of the very hard rock UHS. It accounted, in a rigorous probabilistic manner, for variations and uncertainties in soil stiffness, stress-strain nonlinearity, and material damping; depth of soil to rock; and, stiffness of the rock under the soil.

Generic horizontal and vertical design spectra were derived using the calculated UHS as the starting point. Generic design V/H ratios to be used in site-specific studies to generate site specific vertical motions, were also produced. All the generic soil curves are presented as a function of three parameters: soil class; depth to rock; and, rock class under the soil.

The development of these parameters for the NYCDOT Guidelines represent a significant improvement to the previous guidelines and other codes, since it will result in better representation of the ground motions at a bridge site, bringing closer the generic ground motions to those that could be obtained from site-specific studies. The fact that the new guidelines better fit the specific characteristics of the NYC region, will permit the engineers to evaluate the need for retrofitting existing bridges or strengthening new ones at the right places.

Recommendations for liquefaction evaluation are also provided in the guidelines, including recommendations for earthquake magnitude and peak ground surface accelerations, which are critical parameters for evaluating liquefaction potential and which have not been included in previous guidelines. The new document also includes recommendations for site-specific studies, providing guidelines and minimum requirements that must be satisfied. These include: procedures to establish soil horizontal and vertical design motions; recommendations to evaluate the effects of the depth to the rock surface; recommendations to account for uncertainties in the soil properties; minimum requirements to establish lower bound horizontal design motions; recommendations for time history analysis of bridges; recommendations for the incorporation of spatial variation effects in the analysis; and different requirements for critical and non-critical bridges site-specific studies.

The final draft of the new NYCDOT Seismic Design Guidelines for Bridges was submitted to NYSDOT for peer review in September 2008. Upon completion of their review, these guidelines will be adopted for the seismic and retrofit design of bridges in New York State. The review is expected to be complete by the end of April 2015.

### **ENVIRONMENTAL ENGINEERING**

In 2014, the Environmental Engineering staff of the Quality Assurance section continued to provide expertise and oversight of the various environmental issues of the reconstruction of the Paerdegat Basin Bridge, Rockaway Parkway Bridge, Fresh Creek Bridge, Gerritsen Inlet Bridge, and the Bay Ridge Avenue Bridge in the Belt Parkway Project. This includes monitoring and

## ***ACCOMPLISHMENTS & PLANNED PROJECTS***

oversight of wetland restorations, management of storm water erosion and run off controls, asbestos and lead paint abatement, hazardous waste management, spill control/management, management of waste water, and groundwater/soil management. Additionally the unit was involved with the design review of the Mill Basin Bridge to ensure that all environmental issues are included in the project specifications and contract documents. The unit also works closely with project management and resident engineering staff through periodic meetings and site visits to ensure that environmental permits, work procedures and construction operations are in compliance with NYSDEC, US EPA and NYCDEP. The unit continues to provide environmental management on the Brooklyn Bridge, Manhattan Bridge, Greenpoint Avenue Bridge, Belt Parkway bridges, City Island Bridge, Component Rehabilitation projects, and emergency work over water projects.

## ACCOMPLISHMENTS & PLANNED PROJECTS

### Bridge Maintenance, Inspections and Operations

#### EAST RIVER BRIDGES ANTI-ICING PROGRAM

Traditional snow and ice control practices rely heavily on the use of salt, a material known to corrode steel and accelerate the deterioration of concrete and asphalt surfaces. A new method of snow and ice control was needed to protect the City's \$2.5 billion investment in the rehabilitated East River Bridges. This method, known as anti-icing, involves the application of a chemical freezing point depressant to the roadway surface to prevent snow and ice from bonding to the roadway. Frequent plowing removes any accumulation of unbonded snow or ice before traffic is affected.

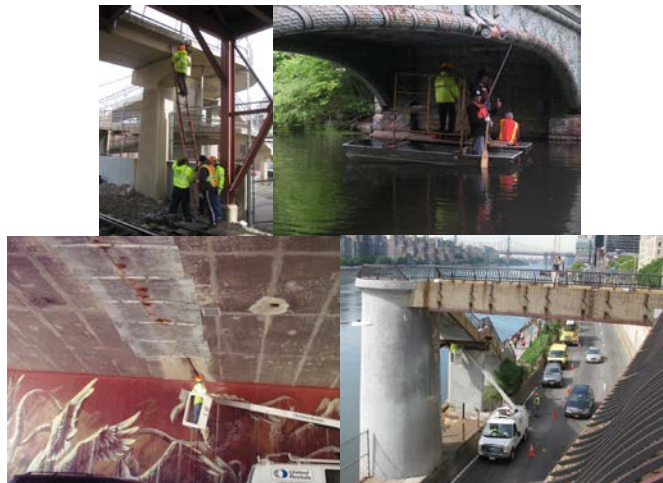
The Division's Anti-Icing Program uses the liquid chemical potassium acetate and aggregate chemical sodium acetate. The anti-icing fleet consists of twenty-two application trucks, five plow trucks and several smaller plows. Ten of the spray trucks are combination spray/plow trucks with a 1,000 gallon tank capacity, and five are spray-spreader/plow trucks with a 360 gallon spray capacity, and a nine cubic yard spreader capacity. There are twenty chemical storage tanks, with a total storage capacity of 114,250 gallons.

New anti-icing yards storing both chemicals have been established under all four East River bridges. Supervisors monitor the bridge decks during storm events by traversing them and using thermal instrumentation installed in their vehicles to make informed decisions as to when to apply chemicals. GPS capabilities have been installed in key vehicles to assist supervisors with the decision making process.

In the winter of 2013-2014, a total of 107,200 gallons of potassium acetate and 182 tons of sodium acetate were applied on the roadways of all four East River Bridges.

#### INSPECTIONS

In 2014, Inspections covered 165 bridges and 601 spans. Emphasis was placed on ensuring public safety through the monitoring of potentially hazardous conditions and temporary repairs. The unit performed 859 monitoring inspections, including special winter monitoring inspections of cellular structures, shorings, and potential fire hazards. In addition, 132 emergency inspections were conducted in response to hot line calls, in-house requests, or citizen complaints.



Inspecting Minthorne Street Bridge in Staten Island in March 2014, Lullwater Bridge in Prospect Park (From a Boat) and Brooklyn-Queens Expressway over Pearl Street in May 2014, and East 81<sup>st</sup> Street Bridge in June 2014.

## ACCOMPLISHMENTS & PLANNED PROJECTS



Winter Monitoring Locations: Manhattan, Williamsburg, Ed Koch – Queensboro Bridge, and West 155<sup>th</sup> Street Pedestrian Bridge.

The Bridge Data System (BDS) allows inspection reports to be generated and transmitted electronically. It provides access to data from the latest inspection reports on all bridges to all Division units. In addition, when an emergency arises, our inspectors are able to send photographs and other information to the main office via a wireless connection to the internet. This feature enables bridge repair engineers to assess the condition and dispatch repair crews with the appropriate equipment in a timely manner. The updated version of the system was field tested by the contractor and the Bridge Management Unit in 2012 and was fully implemented in March 2013.

A future contract is anticipated to expand the BDS capabilities by incorporating data from capital reconstruction projects. Additional features will include in-depth inspection reports by consultants as well as GPS data.

Since 2002, the Division stores all bridge inspection reports in electronic format. Flag reports are now also transmitted electronically. As of September 2003, standard inspection work is funded by a federal grant. Emergency response inspections and administrative support remain city funded.

The Bridge Management Unit developed a map of truck routes and bridges under capital contracts for the purposes of the Truck Permits Unit. This unit also provided Bridge Maintenance with estimates of the life-cycle benefits of various maintenance tasks, obtained by the software package designed for that purpose.

### STRUCTURAL HEALTH MONITORING

The Bridge Inspection and Management Units have pioneered the use of various nondestructive tests on City bridges, including X-ray diffraction, fiber optics, strain-gauging, ground penetrating radar, and ultrasonic testing. Future applications of such technologies are under consideration. For demonstration purposes, the Manhattan Bridge was surveyed with a radar scanner. The results indicated that the stiffening of the bridge has reduced its torsional motion under subway traffic very significantly. The results matched independent measurements by Global Positioning Systems (GPS).

In November 2010, the cable research project moved to its final phase as sensors were installed on Cable "D" of the Manhattan Bridge with the help of bridge maintenance personnel. The data collection from the instruments in the cable was concluded in October 2011. The final report will

## ACCOMPLISHMENTS & PLANNED PROJECTS

recommend appropriate non-invasive technology for monitoring of suspension cables.

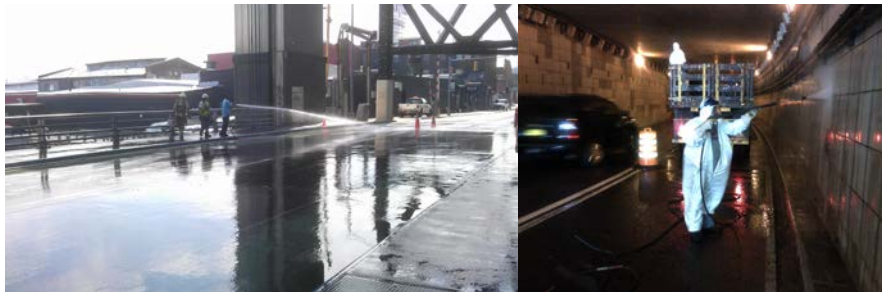
As part of the project, a unique magnetic flux field test was conducted on the cable. The method was developed by Japanese researchers specifically for this test. Its purpose is to estimate the amount of healthy steel in the cable without exposing the wires. The findings were presented at the Agency by the researchers in February 2011. This capability will be considered for future inspections of suspension cables.

In 2014, an existing engineering services agreement (ESA) contract was used to install a remote monitoring system on selected spans of the Manhattan approach to the Brooklyn Bridge. Under the ESA, select locations were instrumented with fiber optic sensors that allow for real time, on-line monitoring of existing flagged conditions. The system was also designed to send out alert messages to Division personnel should certain conditions arise during the monitoring of these flags. The consultant is currently working on the migration of the web-based system from their own servers to a cloud-based storage solution under the control of the Agency's information technology department. With the delay in the upcoming rehabilitation contract, this system has taken on added importance.

In 2014, the Bridge Management Unit finalized the installation of a real-time on-line system for monitoring the abutments and piers of three bridges in the Bronx identified as vulnerable to scour. Solar panels were installed at each location to supply power to the various instruments and computers installed at each bridge. The computers then send the information that was gathered from the monitoring equipment wirelessly to a remote web server where bridges personnel can monitor conditions in real time.

### CLEANING

In 2014, 7,286 cubic yards of debris were removed from bridges and their surrounding areas, and 1,146 drains were cleaned.



Water Spraying the 9<sup>th</sup> Street Bridge over Gowanus Canal in July 2012. July 2013: Power Washing the Battery Park Underpass. (Credit: Earlene Powell)

### PIGEON DETERRENCE

Excessive numbers of pigeons cause property deterioration, unsafe working conditions and health hazards. Besides being unsightly, accumulation of pigeon droppings and feathers is corrosive to steel structures and raises concerns about health hazards. Many disease organisms have been associated with pigeons. They harbor ectoparasites which can infest or bite humans. Pigeon droppings also harbor fungi that can trigger serious, even fatal, lung diseases such as Histoplasmosis, Cryptococcosis and Toxoplasmosis, when the spores are transmitted to humans who breathe in the harmful dust.

The Division utilizes a relatively low tech, and passive, approach to deterring pigeons. In 2006, the type of barrier used to cage out pigeons was changed from the drop ceiling method to netting.

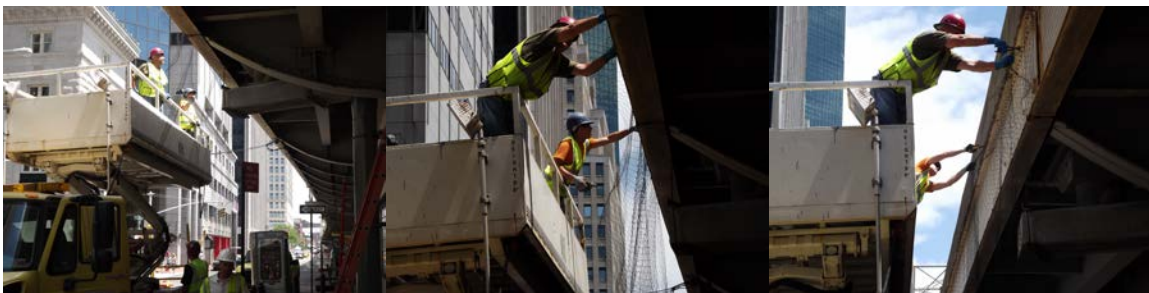


## ACCOMPLISHMENTS & PLANNED PROJECTS

The netting is supported by steel cables that are clipped to the beams. This method is currently in use under the Brooklyn Queens Expressway (over Prospect Street), at the Pulaski Bridge, under the Brooklyn Bridge at “Ash Alley,” and at the anti-icing tank storage area under the Brooklyn Bridge at Dover Street. In addition, a pigeon deterrent system involving low voltage wires is in place at the Belt Parkway Bridge over Ocean Parkway. The wires are installed along the web of the girders and are hardly visible, yet highly effective. The system has been in operation for over eight years now and no pigeons have been observed under or by the bridge ever since. The community is pleased that we addressed one of their most serious and longstanding complaints. The system requires minimum maintenance and is extremely easy to operate.

In 2014, we continued to experiment with a new method on the flanges over the north sidewalk at the Brooklyn-Queens Expressway over Atlantic Avenue: a gel, whose active ingredient is capsaicin, that is applied to the spots unwanted birds would normally perch. The burning sensation caused by the capsaicin irritates the birds’ feet and results in them roosting elsewhere.

In 2014, pigeon dropping removal and/or pigeon proofing were performed at the Boston Road Bridge over Hutchinson River Parkway, Brooklyn-Queens Expressway from 30<sup>th</sup> Avenue to 37<sup>th</sup> Avenue, Brooklyn-Queens Expressway at Northern Boulevard and the Grand Central Parkway, the Clearview Expressway at Union Turnpike, and on the north outer roadway of the Ed Koch – Queensboro Bridge.



Installing Pigeon Netting at Old Slip (FDR Drive at the South Street Viaduct) in June 2012: Carpenters Stephen Buckley, William Sic, and Joseph Moschella, and Supervisor Carpenter Joseph Vaccaro. (Credit: Thomas Whitehouse)



Nature’s Pigeon Deterrent— Falcons on the Brooklyn Bridge South Side Tower, Manhattan Tower Top, and Cables. Falcons Have Lived on the Brooklyn Bridge Since 1995. According to the New York State Department of Environmental Conservation, New York State now has the largest population of peregrines in the eastern United States. There Were 20 Active Nesting Falcon Pairs in New York City in 2013.

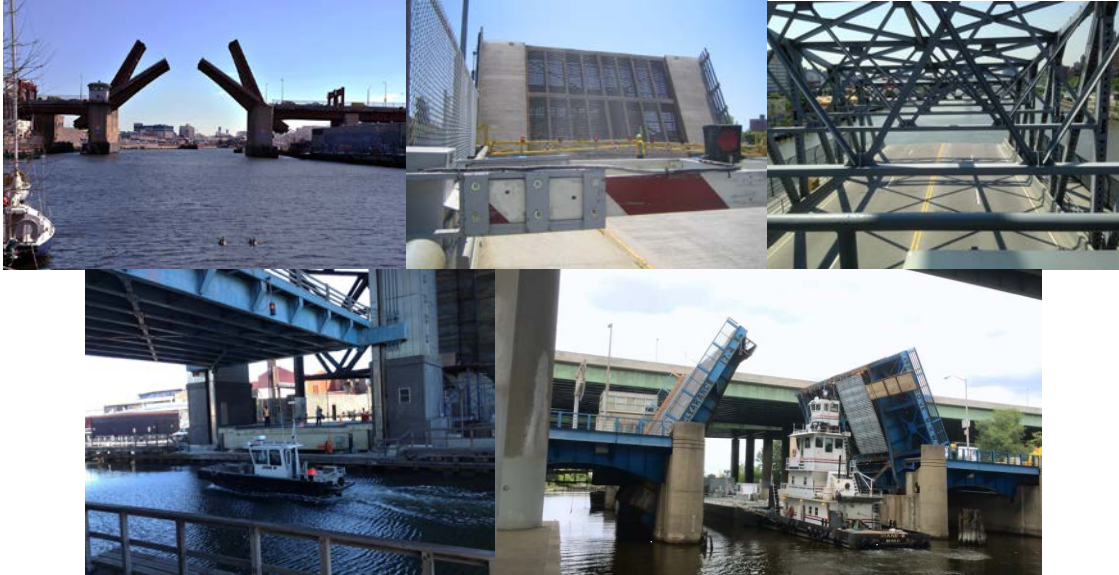


Falcon Family on the Williamsburg Bridge. (Family Credit: Russell Holcomb) “Owl” Guarding the Machinery Room of the Broadway Bridge. A Hawk on the Broadway Bridge. (Owl and Hawk Credit: Albert Hong)

## ACCOMPLISHMENTS & PLANNED PROJECTS

### BRIDGE CLASSIFICATION

The Coast Guard regulations, which govern the operation of the City's movable bridges, define the owner's responsibility to the mariner by classifying a bridge as "open on demand" or "open on advance notice." An "on demand" bridge provides an immediate opening to any vessel wishing to pass the bridge. An "advance notice" bridge opens after the mariner requests an opening several hours in advance. "On demand" bridges must be staffed at all times. "Advance notice" bridges are staffed only when necessary. DOT redesigned the work process in order to reduce personnel costs to the City and improve the delivery of services to the maritime community.



Pulaski Bridge Opening in February 2010. (Credit: Bernard Ente) Third Street Bridge Opening in June 2012. (Credit: Nikita Gupta) 145<sup>th</sup> Street Bridge Open in June 2013. (Credit: Ting Yu Huang) Ninth Street Bridge Open in September 2013. (Credit: Vera Ovetskaya) Unionport Bridge Open for Tugboat.

In October 2000, the Department implemented the United States Coast Guard-approved changes, establishing a four-hour notice for the Harlem River bridges, and a two-hour notice for the remaining "advance notice" bridges. The "on demand" classification remains for three bridges. The revised advance notice requirements allowed the formation of mobile crews with overlapping responsibilities, meeting the mariners' needs and, in some instances, improving service by providing two mobile crews to expedite a vessel's travel along a waterway.

The reduction in planned personnel saves approximately \$1,042,480 annually. In addition, bridge operational capabilities, general maintenance, and debris and snow removal have been enhanced through the more efficient utilization of existing personnel.

Currently in its final design phase, the reconstruction of the Mill Basin Bridge (part of the second Belt Parkway Group) is scheduled to start in summer 2015. The new bridge will be a fixed structure with a 60-foot clearance over Mean High Water, obviating the need for opening and closing the structure to accommodate tall vessels.

The Shore Road Bridge over Hutchinson River will be replaced with a new bridge built with a higher clearance, thereby reducing the number of times the bridge must be opened. At that time, we can determine if advance notice is justified.

## *ACCOMPLISHMENTS & PLANNED PROJECTS*

### **Summary of Vessel Openings 2000 - 2014**

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Brdn Ave. (Q)	0	28	0	0	0	1	0	0	0	0	0	0	0	0	0
Brdwy (B/M)	6	27	83	49	16	2	18	42	58	57	15	11	44	0	6
Brecknr Expwy (Unnprt Brdg) (B)	385	420	332	300	309	253	250	281	323	349	308	198	143	143	218
Carroll St. (K)	102	80	124	186	49	22	28	13	38	91	146	29	95	2	12
Grand St. (K/Q)	17	50	19	10	8	5	2	5	0	0	0	3	3	0	0
Grnpoint Ave. (K/Q)	688	641	659	738	1093	1045	905	641	485	428	388	667	733	609	723
Hmltn Ave. (K)	933	832	946	824	757	677	1077	354	0	150	905	1060	965	651	760
Hntrs Point Ave. (Q)	0	36	0	0	0	0	0	1	0	0	0	0	0	0	0
Htchsn River Pkwly (B)	5	120	30	5	37	10	2	51	61	170	224	169	197	275	204
Macombs Dam (B/M)	0	0	0	0	0	0	0	4	2	0	3	1	22	0	0
Mdsn Ave. (B/M)	0	0	0	0	7	0	9	35	8	0	3	1	6	0	0
Metrpltn Ave. (K)	279	366	339	342	153	0	104	329	245	240	254	413	468	378	360
Mill Bsn (K)	336	317	142	173	164	162	174	182	190	183	197	236	277	246	210
Pulaski (K/Q)	276	208	308	599	694	734	433	489	639	611	467	591	476	484	693
Rsvlt Islnd (M/Q)	58	48	125	63	669	150	54	48	0	62	0	0	55	55	43
Shore Rd (Pelham Pky) (B)	2168	2222	1897	1910	2011	1683	1704	1645	1446	806	1197	811	613	697	724
Union St. (K)	85	101	62	24	21	11	9	5	10	28	32	4	36	0	0
Ward's Islnd Pdstrn (M)	0	279	0	0	7	2	8	4	6	3	5	0	0	0	3
Willis Ave. (B/M)	4	40	0	7	25	2	41	67	17	9	1	1	0	0	0
3 <sup>rd</sup> Ave. (B/M)	1	1	0	0	0	0	6	60	7	0	3	3	4	2	6
3 <sup>rd</sup> St. (K)	178	117	212	152	99	43	31	39	49	89	74	27	68	0	0
9th St. (K)	513	808	733	547	457	360	480	333	287	387	475	670	585	270	427
145 <sup>th</sup> St. (B/M)	1	6	0	0	9	0	0	0	0	0	0	1	6	0	0
W.207 <sup>th</sup> St. (B/M)	6	14	4	6	10	1	12	24	2	3	7	5	23	0	0
<b>TOTAL</b>	<b>6041</b>	<b>6761</b>	<b>6015</b>	<b>5935</b>	<b>6595</b>	<b>5163</b>	<b>5347</b>	<b>4652</b>	<b>3873</b>	<b>3666</b>	<b>4704</b>	<b>4901</b>	<b>4819</b>	<b>3812</b>	<b>4389</b>

## ACCOMPLISHMENTS & PLANNED PROJECTS

### When and Where Unit

In 2014, the following structures were worked on under the Division's When and Where contracts:

Trans-Manhattan Expressway over Harlem River Drive Northbound Ramp, Riverside Drive over West 158<sup>th</sup> Street, FDR Drive Overpass at 90<sup>th</sup> Street – Protection Beam, Pedestrian Bridge at 73<sup>rd</sup> Street over Amtrak, West 34<sup>th</sup> Street Bridge over Amtrak 30<sup>th</sup> Street Branch, East 233<sup>rd</sup> Street Bridge over Metro North, West 34<sup>th</sup> Street Bridge over Amtrak 30<sup>th</sup> Street Branch, 179<sup>th</sup> Street Bridge over Metro-North, Williamsburg Bridge, Concourse Village Avenue Bridge over Metro-North, West 33<sup>rd</sup> Street Bridge over Land Adjacent to Amtrak, East 187<sup>th</sup> Street Bridge over Metro-North, East 25<sup>th</sup> Street Bridge over FDR Drive, Hempstead Avenue Bridge over Cross Island Parkway, East 81<sup>st</sup> Street Bridge over FDR Drive, sections of the Brooklyn-Queens Expressway, 79<sup>th</sup> Street Ramp to Garage, Corlear Park Road Bridge over FDR Drive, East 71<sup>st</sup> Street Bridge over FDR Drive, Isham Park Pedestrian Bridge over Harlem River Inlet, and Fort Tryon Park Bridge over South Cloisters.

A special protection beam was fabricated and installed for the Park and Promenade over the southbound FDR Drive at 91<sup>st</sup> Street. This protection beam is necessary because on too many occasions, errant trucks have found their way onto the southbound FDR Drive and caused damage to the underside of the overhead structure supporting the park and promenade between East 79<sup>th</sup> Street and East 91<sup>st</sup> Street. The effect of such repetitive hits is cumulative, and increases the threat to the safety of the FDR Drive traffic and the users of the promenade and park above it in this area. The beam will reduce the chances of trucks making contact with the overhead structure and thus provide an additional measure of safety for the public. Division ironworkers fabricated replacement parts for the protection beam assembly, which were then painted by Division painters. The beam was installed the weekend of October 18, 2014 with minimal disruption to traffic.



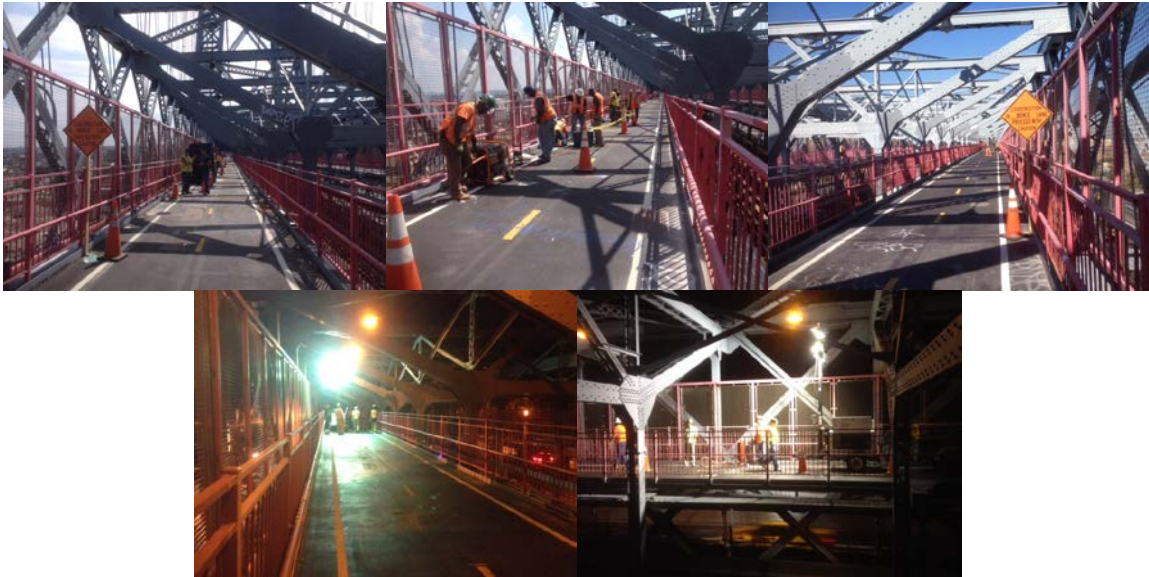
FDR Drive Structure. Installation of the Protection Beam.

The 191<sup>st</sup> Street underpass to the NYCTA IRT line was found to have areas of mold and peeling paint. On the weekend of November 7-9, 2014, the tunnel was closed while the contractor performed mold remediation and graffiti removal and repainted the entire interior surface.

## ACCOMPLISHMENTS & PLANNED PROJECTS



West 191<sup>st</sup> Street Tunnel - Before and After.



Overlay Patch Repairs of the Williamsburg Bridge Bicycle and Pedestrian Path Began in July 2014 and Were Completed in October. (Credit: Thomas Leung)

### MARINE WHEN AND WHERE

New York State DOT conducts the underwater inspections of our waterway structures. A contract was needed to facilitate the performance of marine repairs and to maintain structures in need. The objective is to perform marine structural repairs and maintenance together with other appurtenant work, which constitutes repairs of defective and deteriorated parts of bridge structures due to, and in a water environment. The Department has neither the in-house staffing nor the equipment to handle this type of special work. These repairs could not be handled under the usual time and materials When and Where contract, because the work is unique, in that it requires a consultant with licensed underwater capability to supervise and inspect the work for compliance and adequacy. Furthermore, detailed note taking is necessary by the inspectors to check and approve payments for the contractor's work.

Marine bridge repairs addressed in 2014 include 145<sup>th</sup> Street Bridge over Harlem River, Wards Island Pedestrian Bridge over Harlem River, Shore Road (Pelham Parkway) Bridge over

## ACCOMPLISHMENTS & PLANNED PROJECTS

Hutchinson River, Depot Place Bridge over Conrail, Hutchinson River Parkway Bridge over Hutchinson River, West 207<sup>th</sup> Street Bridge over Harlem River, and Macombs Dam Bridge over Harlem River.

Some of these locations experience repeated damage due to heavy marine traffic and/or a narrow channel, such as the Shore Road (Pelham Parkway) Bridge over the Hutchinson River. The issuance of new flags occasionally necessitates new visits to even recently completed projects. Timber fender systems especially susceptible to recurring hits by barge traffic, and consequently require periodic restoration in relatively short time periods. In addition to damage due to impact, timber elements are also replaced because of deterioration and attack by marine borers, whose activity has vastly increased as the water quality in the New York City area has improved.

Numerous barge hits at the Shore Road Bridge occur repeatedly. As a result, a continuation and completion of previously reported work of replacing timber planking and walers took place at this location, as well as installation of a special plastic material called “UltraPoly” at the top portion of the fender planking and at selected dolphin piles. So far, this material has been shown to protect against rubbing damage.

On the heavily traveled Hutchinson River Parkway Bridge over Hutchinson River, severe deterioration of key structural steel elements supporting the steel grid deck of the southeastern quadrant of the span forced urgent measures to be taken, first, by providing immediate temporary replacements to take over part of the lost support capability, and subsequently, by installing new steel replacement “sleeper” beams and heavy local support at deteriorated stringer sections.



Hutchinson River Parkway Bridge - Installation of Sleeper Steel Beams to Directly Support the Steel Grating.

The southwest fender system of the Wards Island Pedestrian Bridge was severely battered by an impact from a large barge, leaving its timber structure dislocated, damaged and incapable of providing the designed protection from future barge hits. It was immediately necessary to temporarily provide safety measures to warn off mariners from coming too close to the debris field created as a result of that impact. Construction of a complete replacement fender system commenced in 2014 after a series of temporary measures were taken to protect the west tower of the bridge.



Wards Island Pedestrian Bridge – Collapsed Fender.

## ***ACCOMPLISHMENTS & PLANNED PROJECTS***

### **PAINTING**

In 2014 the following bridges were painted as part of the in-house maintenance program: Atlantic Avenue Service Road Eastbound and Westbound over East New York Avenue, West 176<sup>th</sup> Street Pedestrian Bridge over Approach to George Washington Bridge, Pennsylvania Avenue Bridge over Belt Parkway, Hempstead Avenue Bridge over Cross Island Parkway, Jackie Robinson Parkway – Union Turnpike over Austin Street, 47<sup>th</sup> Street Bridge over Grand Central Parkway, and Brooklyn-Queens Expressway West Leg over Grand Central Parkway.

In 2014 the following bridge was painted as part of the capital program: the Greenpoint Avenue Bridge over Newtown Creek.



May 2014: Bridge Painters Jamie Andrade and Goncalo Lima Refreshing the Bicycle Path Markings. June 2014: Bridge Painter Brian Kavanagh Reapplying the Brooklyn Bridge Line Striping. (Credit: Earlene Powell)

In 2014, the following structures were also painted: Department of Transportation Oilers' yard at 21<sup>st</sup> Street, and Department of Transportation facilities at Kent Avenue and Clay Street.

During 2014, the following structures were also painted during the winter: Facilities at the Harper Street Maintenance and Repair Shop, Department of Transportation Ironworker Shop at 206<sup>th</sup> Street, and Department of Environmental Protection facilities at Oakwood, North River, and Bowery Bay.

The following locations were also worked on in support of the DOT Iron Worker Shop: Hamilton Avenue Asphalt Plant, Ed Koch – Queensboro Bridge, Westchester Avenue Bridge over Hutchinson River Parkway, Battery Park Underpass Motor Room, Mill Basin Bridge, Greenpoint Avenue Bridge, Grand Street Bridge, Roosevelt Avenue Bridge, Department of Transportation Wythe Avenue facility, Cross Island Parkway over Dutch Broadway, Borden Avenue Bridge, Manhattan Bridge, and the Department of Transportation South 6<sup>th</sup> Street facility.

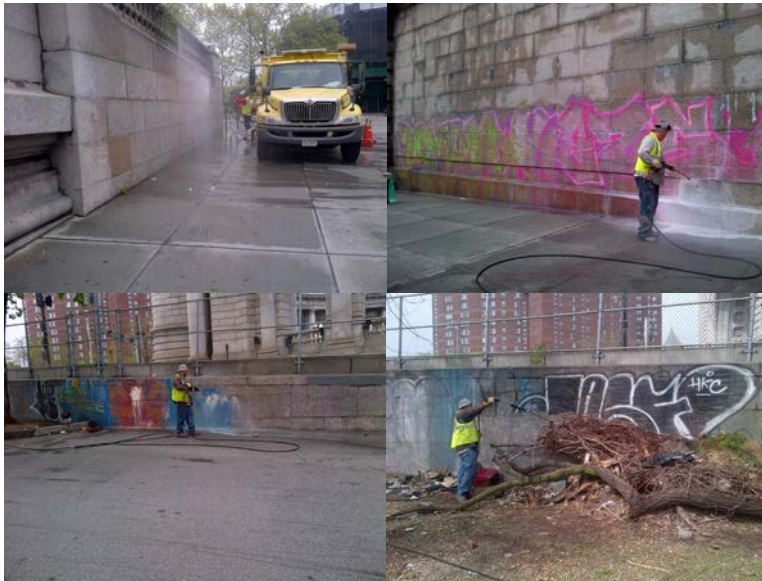
### **GRAFFITI REMOVAL**

In 2014, 4,574,830 square feet of graffiti were eliminated. This program focuses its primary attention on the four East River bridges, as well as the following 21 arterial highways: Clearview Expressway, Gowanus Expressway/Belt Parkway, Major Deegan Expressway, Harlem River Drive, Van Wyck Expressway/Whitestone Expressway, Brooklyn-Queens Expressway, Jackie Robinson Parkway, Sheridan Expressway, Hutchinson River Parkway, Henry Hudson Parkway, West Shore Expressway, Richmond Parkway, Martin Luther King Jr. Expressway, Staten Island Expressway, Bruckner Expressway, Prospect Expressway, Grand Central Parkway, Long Island Expressway, Cross Bronx Expressway, Nassau Expressway, and Bronx River Parkway.

## ACCOMPLISHMENTS & PLANNED PROJECTS



February 2014: Bridge Painters Michael Scotti (on Truck), Russell Newme (Operating Truck), and Willie Tyler, Supervisor Bridge Painter Cesar Pazmino, and Bridge Painter Frank Duic (in Lift Truck) Removing Graffiti on the LIRR Bridge Over the Van Wyck Expressway. (Credit: Earlene Powell)



May 2014: Bridge Painters Russell Newme and Goncalo Lima Removing Graffiti From the Manhattan Bridge. (Credit: Earlene Powell)





## ACCOMPLISHMENTS & PLANNED PROJECTS



May 2014: Bridge Painter Russell Newme, Supervisor Bridge Painter Cesar Pazmino, Bridge Painters Goncalo Lima and Samuel Martinez, and Supervisor Bridge Painter Robert Avellino Removing Graffiti From the Williamsburg Bridge. September 2014: Supervisor Bridge Painter Cesar Pazmino and Bridge Painter Goncalo Lima Removing Graffiti From the Manhattan Bridge Market Place. (Credit: Earlene Powell)

During 2014, graffiti was also removed from the following structures: 181<sup>st</sup> Street and Morris Avenue, Delancey Street, Five Boro Bike Tour Route, 59<sup>th</sup> Street between 1<sup>st</sup> and 2<sup>nd</sup> Avenues, Madison Avenue Bridge, Manhattan Bridge at Forsyth Street, 60<sup>th</sup> Street in Maspeth, Cross Island Parkway over Conduit Avenue, FDR Drive, Pennyfield Avenue, Hunters Point Bridge, Greenpoint Avenue Bridge, Riverside Drive and West 155<sup>th</sup> Street, Wards Island Bridge, First Avenue Tunnel, NYC Marathon Route, 145<sup>th</sup> Street Bridge, 163<sup>rd</sup> Avenue at 99<sup>th</sup> Street, 176<sup>th</sup> Street approach to George Washington Bridge, 34<sup>th</sup> Avenue over Brooklyn-Queens Expressway, East 128<sup>th</sup> Street Pedestrian Bridge over 3<sup>rd</sup> Avenue Bridge Approach, 57<sup>th</sup> Street at Westside Highway, 60<sup>th</sup> Street and 62<sup>nd</sup> Avenue, Alley Pond under Grand Central Parkway, Atlantic Avenue and Van Wyck Expressway, Bartow Avenue, Belt Parkway over Ocean Avenue, Burnside Avenue at Grand Concourse, Dutch Broadway, 37<sup>th</sup> Street at FDR Drive, Francis Lewis Boulevard, Hempstead Avenue over Cross Island Parkway Northbound Ramp, Hempstead Turnpike, Lorimer Street at the Brooklyn-Queens Expressway, Metropolitan Avenue at the Brooklyn-Queens Expressway, Midland Parkway, Mosholu Parkway at Jerome Avenue, Park Avenue and Ryerson Street, Pelham Bay Bridge, Queens Boulevard at the Long Island Expressway, Riverdale Avenue and West 238<sup>th</sup> Street, Springfield Boulevard at Grand Central Parkway, Woodhaven Boulevard, and Wythe Avenue at the Brooklyn-Queens Expressway.

### RESEARCH AND PRESENTATIONS

In 2014 research work and/or case histories of the Division were presented in the following proceedings:

Transportation Research Board 92<sup>nd</sup> Annual Meeting, Washington D.C., 12 – 16 January 2014. Yanev, B. *Deck Joints: The Weak Link in Bridge Structures and Life-Cycles*.

ASCE Metropolitan Section Infrastructure Group Seminar - Ports and Waterfront Infrastructure, New York City, 30 April 2014. Anastasio, S., and Munoz, R. *FDR Marine Borer Pile Rehabilitation Program*.

The Society for Protective Coatings, 2014 International Conference and Exhibition, Orlando, Florida, 10 - 13 February 2014. Vainblat, G., and Kolchinskiy, T. *When Size Does Matter: An In-Depth Analysis of Brooklyn Bridge Project Data to Determine the Most Efficient Size of Abrasive Blast Containment Units and the Workforce*.

Betti, R, Khazem, D., Carlos, M., Gostautas, R., and Virmani, Y. P. *Corrosion Monitoring Research for City of New York Bridges*. Federal Highway Administration Office of Infrastructure Research and Development -HRT-14-023, May 2014.

Innis, Jack. *Coatings Crew Connects With Brooklyn Bridge Rehab*. CoatingsProMag, May 2014.

31<sup>st</sup> Annual International Bridge Conference, Pittsburgh, Pennsylvania, 8 – 12 June 2014. Csogi,

## ACCOMPLISHMENTS & PLANNED PROJECTS

R. IBC 14-74: *The Reconstruction of the Manhattan Bridge in New York City.*

7<sup>th</sup> International Conference on Bridge Maintenance, Safety and Management, Shanghai, China, 7 – 11 July 2014. Csogi, R. *The Reconstruction of the Manhattan Bridge in New York City.*

30<sup>th</sup> US - Japan Bridge Engineering Workshop, Washington, D.C., 21 – 23 October 2014. Yanev, B. *Joints: the Weak Link in Bridge Design and Management.*

Gong, X., and Agrawal, A. K. *Numerical Simulation of Fire Damage to a Long-Span Truss Bridge.* Journal of Bridge Engineering, October 2014.

IFSTTAR (the French institute of science and technology for transport, land, and networks), Département Matériaux et Structures, Champs-sur-Marne, France, 25 November 2014. Yanev, B. *Bridge Management.*

Dr. Yanev chairs the Subcommittee on Bridge Safety and Security, and is a member of the Transportation Research Board Committees on Bridge Maintenance, Management, Seismic Design, and Non-Destructive Testing.

In 2014 the National Science Foundation approved Dr. Yanev's proposal and funded Project NCHRP 20-05/Topic 46-11 Post-Extreme Event Assessment of Infrastructure Damage to Highway Bridges. He participates in the project review panel, and his proposal for the analytic modeling and laboratory testing of bridge deck expansion joints is under review.

In addition, the Division sponsors an in-house lecture series, inviting speakers from industry and academia several times a month. Highlight topics of the presentations in 2014 included: small movement bridge joints, examples of magnesium-alumina-liquid-phosphate concrete repair applications on transportation assets, intelligent infrastructure systems - monitoring, modeling and decision making tools and techniques, and fatigue deterioration in reinforced concrete bridge decks.



Division Staff Testing a New Patch Material on the East 25<sup>th</sup> Street Pedestrian Bridge Over the FDR Drive in March 2014.  
(Credit: Bojidar Yanev)



March 2014: Bridge Repairer & Riveter Daniel Jederlinic Welding New Steel Grating and Support Framework on the Rikers Island Bridge.  
(Credit: Steve Havemann)

## ACCOMPLISHMENTS & PLANNED PROJECTS



July 2014: Supervisor Bridge Repairer and Riveter Steve Havemann Fabricating a Wrench to Remove Nuts From a Seized Rocker Bearing.



June 2014: Summer Interns Nazariy Davydovich, Simona Marginean, and Neil Shah Preparing to Conduct Strain Gauge Testing on the Hamilton Avenue Bridge. July 2014: Summer Intern Nazariy Davydovich Checking the Temperature of the Valve on the 9<sup>th</sup> Street Bridge. August 2014: Summer Interns Neil Shah, Nazariy Davydovich, and Simona Marginean Preparing to Conduct Strain Gauge Testing on the Third Avenue Bridge. (Credit: Vera Ovetskaya). Assistant Mechanical Engineer Vera Ovetskaya.

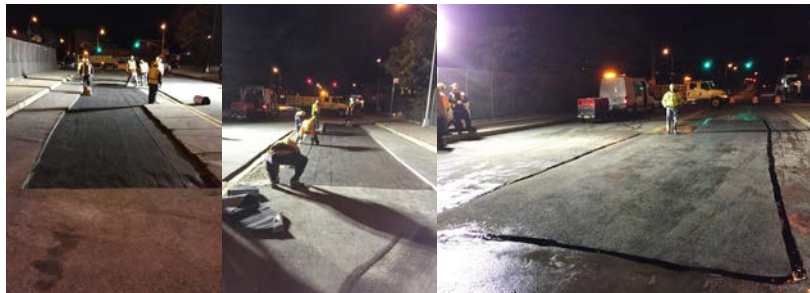


August 2014: Carpenters Stephen Buckley and William Sic, Supervisor Carpenter Joseph Vaccaro (in White Hard Hat), and Carpenters Gregory Nolan and Edward Alfano Jr. Testing the Installation of Polyvinyl Chloride Protection Boards Around the West Street Portal of the Battery Park Underpass. These Would be Placed in the Event the Coastal Storm Plan is Activated. (Credit: Paul Schwartz)

## ACCOMPLISHMENTS & PLANNED PROJECTS



October 2014: Installing Trusses for a Roof to Enclose the Trailers to Create a Shop Area at Vernon Boulevard for Maintenance of Anti Icing Equipment - Carpenters Stephen Buckley, Joseph Moschella, Construction Project Manager Hany Soliman, and Carpenters Edward Alfano and Gregory Nolan. This Replaced the Pulaski Yard Which was Damaged by Hurricane Sandy. (Credit: Thomas Whitehouse) Executive Director of Bridge Preventive Maintenance and Repair Thomas Whitehouse Inspecting the Connections.



November 2014: Wearing Surface Repairs at 149<sup>th</sup> Street over the Cross Island Parkway. Applying the Waterproofing Membrane. The Finished Patch. (Credit: Steve Mezzacappa)



December 2014: Japanese Public Construction Inspector Masahide Nasu from the Kumamoto Prefecture Government Visited the Brooklyn Bridge Rehabilitation Project. Resident Engineer Douglas Reese, Chief Resident Engineer Anthony Grosso, Inspector Masahide Nasu, Resident Engineer Guerman Vainblat, and Director of East River Bridges Hasan Ahmed.

## Appendix A

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### BRIDGE CAPITAL PROGRAM

East River Bridge Rehabilitation Plans A-1

Bridges Under Construction A-2

Component Rehabilitation A-3

Bridges Under Design A-4

**MANHATTAN BRIDGE**  
REHABILITATION ITEMS  
*TOTAL ESTIMATED COST*

	Est. Cost (\$ in millions)
• Repair floor beams. (1982)	0.70*
• Replace inspection platforms, subway stringers on approach spans. (1985)	6.30*
• Install truss supports on suspended spans. (1985)	0.50*
• Partial rehabilitation of walkway. (1989)	3.00*
• Rehabilitate truss hangers on east side of bridge. (1989)	0.70*
• Install anti-torsional fix (side spans) and rehabilitate upper roadway decks on approach spans on east side; replace drainage system on approach spans, install new lighting on entire upper roadways east side, including purchase of fabricated material for west side of bridge. (1989)	40.30*
• Eyebar rehabilitation - Manhattan anchorage Chamber "C." (1988)	12.20*
• Replacement of maintenance platform in the suspended span. (1982)	4.27*
• Reconstruct maintenance inspection platforms, including new rail and hanger systems and new electrical and mechanical systems; over 2,000 interim repairs to structural steel support system of lower roadway for future functioning of roadway as a detour during later construction contracts. (1992)	23.50*
• Install anti-torsional fix on west side (main and side spans); west upper roadway decks, replace drainage systems on west suspended and approach spans; walkway rehabilitation (install fencing, new lighting on west upper roadways and walkways); rehabilitate cables in both Brooklyn and Manhattan anchorage chambers; dehumidify Brooklyn and Manhattan anchorages. (1997)	141.82*
• Installation of test panels. (1982)	1.55****
• Removal of existing suspender ropes and sockets in the suspended spans; replacement with new suspender ropes and sockets in the suspended spans and re-tensioning of suspender ropes bearing plates; re-tensioning of cable band bolts; removal of existing main cable wrapping; cleaning of main cables; application of new protective paste on main cables; replacement of new main cable wrapping; reinforcement of truss verticals and gusset plates. Replacement of necklace lighting and multirotational bearings at truss "C" and "D," installation of access platforms at towers, rehabilitation of south upper Roadway Lighting. (2010)	159.12*
• Interim Steel Rehabilitation and Painting - cable and saddle repairs lower roadway floorbeams @PP 37/38 on approaches and at anchorages; west side truss rockers and grillages on approaches; cable and suspender repairs. Removal of parking desk. Painting entire west side, all four cables. (2001)	127.98*

**MANHATTAN BRIDGE**  
**REHABILITATION ITEMS**  
**TOTAL ESTIMATED COST**

	Est. Cost (\$ in millions)
<ul style="list-style-type: none"> <li>• Stiffening of Main Span; Reconstruction of North Subway framing; reconstruction of North upper roadway deck at suspended spans; rehabilitation of north approach span trusses; replace overlay on north upper roadway approach spans; rehabilitation of north elevated structures and subway tunnels; removal of railing on truss “D” in the north spans; painting of north side of bridge; new inspection platforms and debris protection in approach spans; construction of new north bikeway, replacement of approach span bearings and grillages; installation of Intelligent Vehicle Highway System for North and South Upper Roadways as well as for Lower Roadway. (In Progress)</li> </ul>	184.78*
<ul style="list-style-type: none"> <li>• Rehabilitation of Lower Roadway; rehabilitation of anchorage roofs under lower roadway; rehabilitation of substructures and retaining walls in Brooklyn and Manhattan approaches; installation of new signage on bridge and at plaza areas; installation of new lighting on lower roadway and plaza areas; clean and paint lower roadway; installation of grating platform under towers at lower roadway; canopy lighting at towers. (Present)</li> </ul>	143.80*
<ul style="list-style-type: none"> <li>• Seismic Retrofit. (2020)</li> </ul>	40.00
	to
	60.00***
<ul style="list-style-type: none"> <li>• Structural and Component Rehabilitation (2018)</li> </ul>	75.00
	to
	95.00***
	<b>TOTAL: \$ 962.52</b>
	<b>to</b>
	<b>\$ 1,002.52</b>

\* Construction Complete  
 \*\* In Construction  
 \*\*\* In Design  
 \*\*\*\* Research and Development (completed)

**ED KOCH QUEENSBORO BRIDGE**REHABILITATION ITEMS  
TOTAL ESTIMATED COST

	Est. Cost (\$ in millions)
• Repair lower outer roadways / reconstruct two ramps in lower Queens. (1984)	18.80*
• Reconstruct south upper roadway, replace inspection platforms, lighting. (1986)	31.50*
• Interim rehabilitation, contracts A, B, & C (repairs to lower deck and main bridge approaches). (1985)	2.80*
• Interim rehabilitation, contract D (repairs to lower deck, main bridge, and new median barrier). (1988)	3.00*
• Reconstruct north upper roadway and Queens approaches A & B, rehabilitate bearings at Queens approach. (1989)	50.00*
• Reconstruct ramps C & D (Queensboro only, not Thompson Avenue). (1988)	10.40*
• Rehabilitate bridge bearings, pier tops, and truss lower chords. (1989)	18.00*
• Rehabilitate Queens approach trusses, lower inner roadways on the main span and approaches. (1996)	172.00*
• Rehabilitate lower outer roadways main span and approaches, (bikeway) cleaning and painting. (2001)	227.05*
• Cleaning and painting main bridge upper trusses. (2009)	168.24*
• Miscellaneous Items – Component Rehabilitation. (In Progress)	43.88*
• Eye bar investigation. (In Progress)	0.62****
• Seismic Retrofit. (2020)	40.00
	to
	60.00***
• Installation of aviation lighting (2010)	1.76*
• Replacement of Upper Roadways (2017)	115.00
	to
	140.00
	<b>TOTAL: \$ 898.05</b>
	<b>to</b>
	<b>\$</b>
	<b>948.05</b>

\* Construction Complete

\*\* In Construction

\*\*\* In Design

\*\*\*\* Research and Development

Revised 2014



**WILLIAMSBURG BRIDGE**  
 REHABILITATION ITEMS  
 TOTAL ESTIMATED COST

	Est. Cost (\$ in millions)
• Replace main span outer roadway. (1983)	11.20*
• Replace one third of suspenders. (1984)	3.20*
• Repair pier 20E foundation, and replace bulkhead. (1986)	2.30*
• Paint side spans and towers. (1985)	1.10*
• Paint main and approach spans. (1989)	4.24*
• Emergency interim repairs. (1989)	10.00*
• Install temporary hand-rope system on main cables. (1990)	0.63*
• Main cable preservation (field test - oiling). (1991)	0.44*
• Main cable strand splicing at Manhattan anchorage. (1991)	0.29*
• Interim pedestrian walkway. (1994)	1.05*
• Component repairs of flag conditions on the north outer roadway and north inner roadway. (1994)	4.12*
• Rehabilitate main cables and new redundant suspender system. (1996)	88.30*
• Demolish existing building under approaches. (1993)	1.50*
• Testing Program for bored-in piles. (1993)	0.74*
• Demolish DOS and DOH buildings, replace entire south outer roadway approach structures, rehabilitate south outer roadway deck and south inner roadway deck of the main bridge, and replace south inner roadway substructure of the approaches. (1998)	198.00*

**WILLIAMSBURG BRIDGE**  
**REHABILITATION ITEMS**  
**TOTAL ESTIMATED COST**

	Est. Cost (\$ in millions)
• Portion of Contract #6 BMT track structure work transferred to Contract #5 south approach roadway reconstruction work. (1998)	65.00*
• Paint main and intermediate towers. (2001)	14.90 *(1)
• Reconstruct BMT Subway structure; install new signals, tracks and communication system. (2000)	166.65*
• Miscellaneous rehabilitation work: rehabilitation of towers, replace bearings, travelers, architectural work, painting of north and south trusses, suspender adjustment, tower jacking, construction of colonnades, purchase of barrier transfer machine (BTM) and contra-flow barriers, lane control signal field system. Seismic retrofit – reinforce concrete with granite cladding, bearing replacement at PP10 & 15, rehabilitation of wind tongue casting assembly at main towers, contra-flow of south inner roadway – installation of contra-flow barriers, lightning protection grounding system. Kent Avenue Yard soil erosion and deck pins at PP29 E/W rehabilitation, modular joint repairs and structural flag repairs. (In Progress)	280.00*
• Replace north approach structures (Manhattan / Brooklyn), and rehabilitate north half of bridge. (2002)	233.00*
<b>TOTAL: \$1,086.66</b>	

\* Construction Complete

\*\* In Construction

\*\*\* In Design

(1) Painting suspended in 1996 pending publication of Environmental Impact Statement (EIS) in 1998. Painting resumed under a new schedule in 1999 and was completed in 2001.

Revised 11/12/10, No change

**BROOKLYN BRIDGE**  
REHABILITATION ITEMS  
*TOTAL ESTIMATED COST*

	Est. Cost (\$ in millions)
• Brooklyn Tower protection and new sign gantries. (1981)	2.72*
• Rehabilitate promenade between towers. (1983)	0.94*
• Rehabilitate cables in anchorage and replace short rod suspenders; rehabilitate balance of promenade and construct bikeway and new pedestrian ramp. (1988)	22.68*
• Rehabilitate and paint York, Main, William and Prospect Street structures and main bridge roadway deck overlay. (1988)	6.21*
• Replace suspenders, cable posts, stay cables, hand-rope necklace lights, main cable wrapping; paint suspended spans. (1991)	53.57*
• Rehabilitate ramp E. concrete piers of ramp C and abutment at ramps C & I, and rehabilitate Sands and Washington Street structures in Brooklyn. (1991)	4.73*
• Rehabilitate ramp D and H in Manhattan; permanent improvement of promenade at Manhattan approach. (1993)	17.92*
• Rehabilitate floor systems, stiffening trusses, roadways of suspended spans and Franklin Square trusses. (1994)	66.30*
• Rehabilitate Manhattan traveler (electrical work). (1997)	1.83*
• Rehabilitate ramp D and widening along the FDR Drive. (1996)	11.50*
• Arch supports for Franklin Square truss structure.	9.50*
• Replacement of Suspended Span Deck. (2000)	36.2*
• Resurfacing of the main spans. (1998)	6.67*

**BROOKLYN BRIDGE**  
 REHABILITATION ITEMS  
 TOTAL ESTIMATED COST

	Est. Cost (\$ in millions)
• Improvement of Manhattan end of promenade. (2001)	4.50*
• Rehabilitate Brooklyn approach & ramps (B, S, F), Rehabilitate Manhattan approaches and remaining ramps (A, B, C, F, G, I, J), and Paint entire bridge. (2010)	508.61***
• Seismic Retrofit and Arch Block Rehabilitation. (2019)	300.00
	to
	325.00**
Replacement of Travelers.	22.34*
	<b>TOTAL: \$ 1,076.22</b>
	to
	<b>\$ 1,101.22</b>

- \* Construction Complete
- \*\* In Design
- \*\*\* In Construction

Revised 2014

**BRIDGES UNDER CONSTRUCTION***CALENDAR YEAR 2014***CONTRACT # BRIDGE**


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HBX1152	Bryant Avenue over Amtrak
HBX1164	City Island Road Bridge over Eastchester Bay
HBCMVE	Metropolitan Avenue Bridge over English Kills (Emergency Contract)
SANDHB002	Macombs Dam Bridge over Harlem River (Emergency Contract)
SANDHB002	145 <sup>th</sup> Street Bridge over Harlem River (Emergency Contract)
SANDHB002	Third Avenue Bridge over Harlem River (Emergency Contract)
SANDHB002	Madison Avenue Bridge over Harlem River (Emergency Contract)
SANDHB002	Hunters Point Avenue Bridge over Dutch Kills (Emergency Contract)
SANDHB002	Carroll Street Bridge over Gowanus Canal (Emergency Contract)
SANDHB002	Ninth Street Bridge over Gowanus Canal (Emergency Contract)
SANDHB002	Third Street Bridge over Gowanus Canal (Emergency Contract)
SANDHB002	West 207 <sup>th</sup> Street/West Fordham Road Bridge over Harlem River (Emergency Contract)
SANDHB002	Borden Avenue Bridge over Dutch Kills (Emergency Contract)
SANDHB002	Union Street Bridge over Gowanus Canal (Emergency Contract)
SANDHB002	Grand Street Bridge over Newtown Creek (Emergency Contract)
HBM1027	Harlem River Drive Viaduct, 127 <sup>th</sup> Street (NB)
HBM1027	Harlem River Drive Viaduct, 127 <sup>th</sup> Street (SB)
HBM1124	Willis Avenue Bridge over Harlem River
HBK643	Belt Parkway Bridge over Gerritsen Inlet
HBK1089	Belt Parkway Bridge over Bay Ridge Avenue
HBK1072WM	Tidal Wetland Mitigation (4 Belt Parkway bridges)
BRC270C (#6)	Brooklyn Bridge (Ramps and painting)
HBCBORERS-R	FDR Drive relieving platforms-- downtown, FDR Drive relieving platforms-- midtown, FDR Drive relieving platform uptown + Carroll Street Bridge over Gowanus Canal + Ocean Avenue Pedestrian Bridge over Sheepshead Bay

**BRIDGE CONSTRUCTION***PROJECTS COMPLETED IN CALENDAR YEAR 2014***CONTRACT # BRIDGE**

NONE

**Component Rehabilitation**

The following table illustrates the program's performance over the last eight years:

	#FY 07	FY 08	##FY 09	FY 10	*FY 11	###FY 12	*FY 13	**FY 14
Number of Bridges	0	10	0	13	0	10	0	11
Construction Cost	\$0	\$14.93	\$0	\$12.74	\$0	\$6.35	0	\$15.55

\*No contracts were bid during the 2011, and 2013 calendar years.

# One contract was bid during the 2007 calendar year, but was not registered until April 2008.

## Two contracts were bid during the 2009 calendar year, but were not registered until March and May 2010.

### One contract was bid during the 2012 calendar year and was registered in June 2012.

\*\* Two contracts were bid during the 2014 calendar year, and one was registered in October 2014.

In 2014, work was completed at the following bridges, in the indicated boroughs, at the final cost shown, in millions:

West 148 <sup>th</sup> Street Pedestrian Bridge over Amtrak 30 <sup>th</sup> Street Branch (M)	1.07
Inwood Hill Park Footbridge over Amtrak 30 <sup>th</sup> Street Branch (M)	0.69
Union Street over Brooklyn-Queens Expressway (K)	0.63
4 <sup>th</sup> Avenue over Belt Parkway (K)	0.62
Belt Parkway over Bedford Avenue (K)	1.28
Crown Street over Franklin Shuttle (K)	0.18
(Hill Drive) Cleft Ridge Span over Pedestrian Path South of Boathouse (K)	0.38
<b>TOTAL</b>	<b><u>\$4.85 M</u></b>

During calendar year 2014, work commenced at the following bridges:

None. The contract was not registered until October 2014.

### Component Rehabilitation

There are two projects “still under construction” since the 2013 *Annual Report* was issued.

149<sup>th</sup> Street over LIRR (Q)  
Ocean Avenue over LIRR Bay Ridge (K)

22 component rehabilitation projects are slated to continue, commence or be completed in the 2015 calendar year. They are:

149<sup>th</sup> Street over LIRR (Q)  
Ocean Avenue over LIRR Bay Ridge (K)

Moshulu Parkway over Conrail (Abandoned) (B)  
Leggett Avenue over Amtrak (B)  
East 162<sup>nd</sup> Street over Metro North RR HAR (B)  
East 165<sup>th</sup> Street over Metro North RR HAR (B)  
East 187<sup>th</sup> Street over Metro North RR HAR (B)  
Southern Boulevard over East Fordham Road (B)  
Grand Concourse over East 167<sup>th</sup> Street (B)  
East 180<sup>th</sup> Street over Bronx River (B)  
Riverside Drive over West 138<sup>th</sup> Street (M)  
Riverside Drive over West 145<sup>th</sup> Street (M)  
McGuinness Boulevard/Newtown Creek (Pulaski Bridge Bike Path) (KQ)

Ramp To Queensboro Bridge From East 58<sup>th</sup> Street over East 59<sup>th</sup> Street (M)  
Ramp To 21<sup>st</sup> Street From NY over 22<sup>nd</sup> Street (Q)  
71<sup>st</sup> Avenue over Cooper Avenue (Q)  
Douglaston Parkway NB over Cross Island Parkway (Q)  
Douglaston Parkway SB over Cross Island Parkway (Q)  
Roosevelt Avenue over Flushing Meadow Park Road (Q)  
80<sup>th</sup> Road over LIRR Main Line (Q)  
Hannah Street over SIRT South Shore (R)  
Forest Avenue over Clove Lakes Park Stream (R)

## BRIDGES UNDER DESIGN BY NEW YORK CITY

BIN NO.	CAPIS NO.	FEATURE CARRIED	FEATURE CROSSED	FY CNST	PHASE	BORO
2230290	HBCR02A	MOSHOLU PARKWAY	EQUESTRIAN PATH	2016	FD	B
2242350	HBCR02A	EAST FORDHAM ROAD	GRAND CONCOURSE	2016	FD	B
2269030	HBCR02A	MATTHEWSON ROAD	MAC CRACKEN AVENUE	2016	FD	B
2241080	HBCR02B	SOUTHERN BLVD	CSX PORT MORRIS	2016	FD	B
2241129	HBCR02B	EAST 149 <sup>TH</sup> STREET	AMTRAK & CSX	2016	FD	B
2241330	HBCR02B	UNIONPORT ROAD	AMTRAK & CSX	2016	FD	B
2242071	HBCR02B	BRONX BLVD S.B.	BRONX RIVER	2016	FD	B
2242072	HBCR02B	BRONX BLVD N.B.	BRONX RIVER	2016	FD	B
2242319	HBCR03A	GRAND CONCOURSE	EAST 174 <sup>TH</sup> ST	2016	PD	B
2241790	HBX180	EAST 180 <sup>TH</sup> STREET	METRO NORTH RR	2020	PD	B
2075837	HBX1086	WESTCHESTER AVENUE	HRP	2016	FD	B
2066510	HBX1131	BRUCKNER EXPRESSWAY	WESTCHESTER CREEK	2016	PD	B
2241409	HBX1190	GRAND CONCOURSE	METRO NORTH RR HUD	2018	FD	B
2242220	HBX1214	SNUFF MILL ROAD (SOUTHERN BLVD)	BRONX RIVER	2025	PD	B
2241740	HBX1215	EAST 175 <sup>TH</sup> ST	METRO NORTH RR	2019	PD	B
2230250	HBX1216	MOSHOLU PARKWAY	BRONX RIVER	2025	PD	B
2241670	HBX1670	EAST 169 <sup>TH</sup> STREET	METRO NORTH RR	2020	PD	B
2240137	HBM1147	BROADWAY	HARLEM RIVER	2018	FD	BM
2240079	HBX644S	MADISON AVE	HARLEM RIVER	2017	PD	BM
1240090	BRX287S	MACOMBS DAM BRIDGE	HARLEM RIVER	2015	FD	BM
2240027	BRC156F	MANHATTAN BRIDGE (LL)	EAST RIVER	2018	PD	KM
2240028	BRC156F	MANHATTAN BRIDGE (UL)	EAST RIVER	2018	PD	KM
2240027	BRC156S2	MANHATTAN BRIDGE (LL)	EAST RIVER	2020	PD	KM
2240028	BRC156S2	MANHATTAN BRIDGE (UL)	EAST RIVER	2020	PD	KM
2240019	BRC270S	BROOKLYN BRIDGE	2781 (B.Q.E.)	2020	FD	KM
2244030	HBCR02A	EAST DRIVE	BRIDLE PATH	2016	FD	K
2230370	HBCR02B	SACKETT STREET	B.Q.E.	2016	PD	K
2231449	HBCR03A	KNAPP STREET	BELT PARKWAY	2016	PD	K
2244440	HBCR03A	SOUTH OF TILLARY STREET	NAVY STREET	2016	PD	K
2243710	HBKC062	19TH AVE	BMT SEA BEACH	2023	FD	K
2243820	HBK548	21 <sup>ST</sup> AVE	BMT SEA BEACH	2020	FD	K
2231479	HBK1023	BSHP	MILL BASIN	2015	FD	K
2231439	HBK1090	BSHP	NOSTRAND AVE	2021	FD	K
2243569	HBK1201	ATLANTIC AVE	LIRR ATLANTIC AVE	2016	FD	K
2240270	HBK1213	UNION STREET BRIDGE	GOWANUS CANAL	2019	PD	K
2231319	HBK1202	BELT PARKWAY	BAY PARKWAY	2024	PD	K
2240048	BRC231F	ED KOCH QUEENSBORO BRIDGE (UL)	EAST RIVER	2017	PD	MQ
2240047	BRC231S	ED KOCH QUEENSBORO BRIDGE (LL)	EAST RIVER	2020	PD	MQ
2240048	BRC231S	ED KOCH QUEENSBORO BRIDGE (UL)	EAST RIVER	2020	PD	MQ
2245220	HBCR02A	WEST 57 <sup>TH</sup> STREET	AMTRAK 30 <sup>TH</sup> ST BRANCH	2016	FD	M
2245319	HBCR02A	EAST 97 <sup>TH</sup> STREET	METRO NORTH	2016	FD	M
2229311	HBCR03A	HHP SB	RAMP TO 96 <sup>TH</sup> STREET	2016	PD	M
2229312	HBCR03A	HHP NB	RAMP TO 96 <sup>TH</sup> STREET	2016	PD	M
2246540	HBM551	EAST 34 <sup>TH</sup> STREET	PARK AVENUE TUNNEL	2016	FD	M

PD=Preliminary Design; FD=Final Design; DB=Design Build



## BRIDGES UNDER DESIGN BY NEW YORK CITY

BIN NO.	CAPIS NO.	FEATURE CARRIED	FEATURE CROSSED	FY CNST	PHASE	BORO
2245010	HBM1120	11 <sup>TH</sup> AVE VIADUCT [NORTH]	LIRR WEST SIDE YARD	2020	FD	M
2232040	HBM1056	HOUSTON STREET	FDR DRIVE	2016	DB	M
223204A	HBM1056	FDR DRIVE NB RAMP TO HOUSTON STREET	RELIEF	2016	DB	M
223204B	HBM1056	HOUSTON STREET RAMP TO FDR DRIVE NB	RELIEF	2016	DB	M
2246720	HBM1165	RIVERSIDE RIVE	WEST 158 <sup>TH</sup> STREET/AMTRAK	2018	PD	M
226672A	HBM1171	W 31 <sup>ST</sup> ST	AMTRAK LAYUP TRACKS	2020	FD	M
224501E	HBM1186	W 35 <sup>TH</sup> ST	AMTRAK 30 <sup>TH</sup> ST BRANCH	2023	FD	M
2229290	HBM1189	W 79 <sup>TH</sup> ST	AMTRAK	2017	PD	M
2232070	HBM1221	E 25 <sup>TH</sup> STREET PEDESTRIAN BRIDGE	FDR DRIVE	2022	PD	M
2231880	HBCR02A	CROCHERON PARK PEDESTRIAN	CROSS ISLAND PARKWAY	2016	FD	Q
2230890	HBCR02B	49 <sup>TH</sup> STREET	GRAND CENTRAL PARKWAY	2016	FD	Q
2231950	HBCR03A	150 <sup>TH</sup> STREET	CROSS ISLAND PARKWAY	2016	PD	Q
2231980	HBCR03A	147 <sup>TH</sup> STREET	CROSS ISLAND PARKWAY	2016	PD	Q
2055801	HBCR03A	NORTHERN BOULEVARD WB	FLUSHING RIVER	2016	PD	Q
2055802	HBCR03A	NORTHERN BOULEVARD EB	FLUSHING RIVER	2016	PD	Q
1247560	HBQ1112	METRO AVE (FRESH POND)	LIRR MONTAUK DIV	2016	FD	Q
2231780	HBQ1114	HEMPSTEAD AVE	BCIP	2021	PD	Q
2266149	HBQ1114	HEMPSTEAD AVE	RAMP TO BCIP NB	2021	PD	Q
2231850	HBQ1115	UNION TPKE	BCIP	2021	PD	Q
2248160	HBQ1137	ELIOT AVE	QUEENS BLVD	2022	FD	Q
2240507	HBQ1203	ROOSEVELT AVE	VAN WYCK EXPRY	2016	FD	Q
2248280	HBQ1206	HIGHLAND PK PED BRDG	PEDESTRIAN PATH	2016	FD	Q
2266160	HBQC064	WHITESTONE EXPRY/VAN WYCK EXPRY SB TO BCIP EB	ACCESS ROAD FROM WHITESTONE EXPRY/VAN WYCK EXPRY	2019	PD	Q
2249240	HBCR02B	ARTHUR KILL ROAD	SIRT SOUTH SHORE	2016	PD	R
2249450	HBCR03A	FREMONT AVENUE PEDESTRIAN	SIRT SOUTH SHORE	2016	PD	R
R00010	HBRC036	GALLOWAY AVE	MARIANNE ST	2016	FD	R
R00011	HBRC037	FOREST AVE	CRYSTAL AVE	2016	FD	R
R00013	HBRC038	NAUGHTON AVE	PATTERSON AVE	2016	FD	R
R00023	HBRC039	MIDLAND AVE	HYLAN BLVD	2016	FD	R
R00034	HBRC040	ROCKLAND AVE	BRIELLE AVE	2016	FD	R
R00068	HBRC041	FOREST AVE	RANDALL AVE	2016	FD	R
R00069	HBRC042	GREGG PLACE	RANDALL AVE	2016	FD	R
R00084	HBRC043	ARTHUR KILL RD	MULDOON AVE	2016	FD	R
R00097	HBRC044	RICHMOND HILL RD	RICHMOND RD	2016	FD	R
R00122	HBRC045	ARTHUR KILL RD	RIDGEWOOD AVE	2016	FD	R

Revised 12/2/14

PD=Preliminary Design; FD=Final Design; DB=Design Build

## Appendix B

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### FLAG CONDITIONS

Definitions and Procedures	B-1
2010 - 2014 Red, Yellow and Safety Flags	B-2
Flag Reporting and Tracking Process	B-3

**FLAG DEFINITIONS AND PROCEDURES**

(Source: NYSDOT Engineering Instruction 94-002)

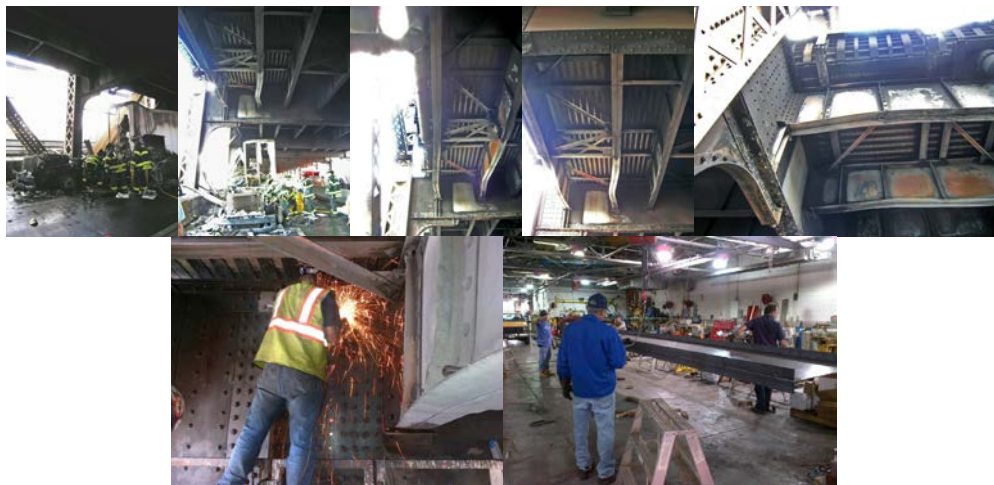
New York State Department of Transportation (NYSDOT) bridge inspection procedures require that "Flags" be issued to report the existence of conditions that pose a clear and present danger, or conditions which, if left unattended for an extended period, would likely become a clear and present danger.

A "Flag" is classified as either a **Red Flag**, **Yellow Flag** or **Safety Flag**.

*Red Flag* is used to report the failure or potentially imminent failure of a critical primary structural component. Potentially imminent means that a failure is likely before the next scheduled inspection. The maximum time between bridge inspections is two years. Red Flags must be addressed within six weeks.



September 2008: Advanced Corrosion of Steel Stringer and Girder. February 2011: Red Flag Stringer Repair at Riverside Drive Viaduct over West 158<sup>th</sup> Street.



August 2013 Red Flags on the Ed Koch Queensboro Bridge. A truck caught fire on the bridge and damaged three stringers that support the eastbound upper roadway. Replacement of the two damaged stringers and the repair of a third were completed in October 2013. All work was performed by in-house forces. August 2013: Firefighters Examining the Damage. Repairing the Bridge Included Custom Designing the Steel Beams, as Well as Fabrication and Installation. Division Ironworkers Fabricated Two 26-Foot-Long, 1.5-Ton Beams in Their Brooklyn Shop.

**FLAG DEFINITIONS AND PROCEDURES**

(Source: NYSDOT Engineering Instruction 94-002)



August 2013 Red Flags on the Ed Koch Queensboro Bridge. October 2013: Removing the Warped Beams. The New Beams.

*Yellow Flag* is used to report a potentially hazardous condition which, if left unattended beyond the next scheduled inspection, would likely become a clear and present danger. A Yellow Flag is also used to report the actual or imminent failure of a non-critical primary structural component, where its failure may diminish the reserve capacity or redundancy of the bridge but would not result in structural collapse or a clear and present danger.



February 2008: Yellow Structural Flag Due to the Deteriorated Cap Beam. October 2008: Corrosion of Steel Secondary Member. November 2008: Crack in Steel Girder.

*Safety Flag* is used to report a condition that presents a clear and present vehicular or pedestrian traffic hazard, but there is no danger of structural failure or collapse.



August, October, and November 2008: Examples of Tripping Hazards. July 2013 Safety Flag: Ironworker and Mason Crews Repairing Missing Joint Seal Materials on the Brooklyn-Bound Williamsburg Bridge. The Joint Sealer Spaces Were Widened on Each Part of the Joint Utilizing the Shop-Made Jack Expansion Blocks, and Then Completely Cleaned With a Needle Gun to Prepare the Surface to be Rough Contacted With Epoxy Glue. After the Glue was Spread on the Sealer Space Surfaces, the Seal Strip was Installed and Tightened. (Credit: Hany Soliman)

**FLAG DEFINITIONS AND PROCEDURES**

(Source: NYSDOT Engineering Instruction 94-002)

Certain Red or Safety Flags may be further classified as *Prompt Interim Action (PIA) flags*. PIA flags must be addressed within 24 hours of discovery.



Example of PIA Safety Flag: Broken Grating. Executive Director of Bridge Preventive Maintenance and Repair Tom Whitehouse (White Hardhat) Ensuring the Proper Setup of Containment Procedures at the St. George Ferry Terminal Landing Slips Before the Masons Address A PIA Flag (Falling Concrete). Inspecting the Flagged Condition.



July 2013 PIA Safety Flag on the City Island Bridge. The repairs, conducted after a record-breaking heat wave, involved opening the joint plates and installing plug welds, which helped correct the plates' position and recreated the proper gap to allow the bridge to expand and contract safely. Finger Joint Before the Repair. Open Finger Joint. Division Crews Repairing the Joints. View Beneath the Finger Joint. The Joint Plates are Placed to Check for the Proper Gap. Leveling the Plate Before Welding. Close-Up of a Plug Weld. After 17 Plug Welds, the Finger Joints Sit Flush on the Roadway.



August 2014 PIA Safety Flag: Broken Joint Concrete Header And Steel Armor on the Long Island Expressway over Dutch Kills Creek. The Condition Was Made Safe By Installing Two Steel Plates. PIA Flag (Truck Wedged Under the FDR Drive at Span 41): Removing the Debris. (Credit: Victor Sandoval) PIA Flag Repair (Through Hole) on Harlem River Drive Ramp. (Credit: Bojidar Yanev)

<b>FLAG CONDITIONS BY CALENDAR YEAR</b>						
	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>% increase (2010 – 2014)</b>
<b>Citywide</b>						
<b>FLAGS ROUTED</b>	1,591	1,342	1,187	1,117	1,465	-8%
<b>RED</b>	53	56	34	62	128	142%
<b>YELLOW</b>	387	252	208	123	245	-37%
<b>SAFETY</b>	1,151	1,034	945	932	1,092	-5%
<b>TOTAL FLAGS ELIMINATED</b>	1,297	966	1,164	1,176	1,167	-10%
<b>RED</b>	47	53	43	44	116	147%
<b>YELLOW</b>	214	126	243	212	173	-19%
<b>SAFETY</b>	1,036	787	878	920	878	-15%
<b>TOTAL FLAGS OUTSTANDING</b>	3,612	3,989	4,012	3,953	4,251	18%
<b>RED</b>	50	53	44	62	74	48%
<b>YELLOW</b>	760	887	852	763	835	10%
<b>SAFETY</b>	2,802	3,049	3,116	3,128	3,342	19%
<b>Division of Bridges Workload</b>						
<b>FLAGS ROUTED*</b>	1,390	1,160	1,001	938	1,200	-14%
<b>RED</b>	52	47	32	61	124	138%
<b>YELLOW</b>	383	250	204	117	242	-37%
<b>SAFETY</b>	955	863	765	760	834	-13%
<b>FLAGS ELIMINATED**</b>	1,198	877	1,057	1,091	1,081	-10%
<b>RED</b>	40	46	41	43	111	178%
<b>YELLOW</b>	207	126	241	208	171	-17%
<b>SAFETY</b>	951	705	775	840	799	-16%
<b>FLAGS OUTSTANDING***</b>	2,076	2,355	2,309	2,166	2,300	11%
<b>RED</b>	50	51	42	60	73	46%
<b>YELLOW</b>	731	845	808	717	798	9%
<b>SAFETY</b>	1,295	1,459	1,459	1,389	1,429	10%

\*Does not include re-routed flags.

\*\*95% of PIA flags were remediated within 24 hours in 2014.

\*\*\*Includes re-routed flags.

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## FLAG REPORTING AND TRACKING PROCESS

There are four primary sources from which flags originate:

- NYSDOT inspectors
- NYCDOT inspectors
- NYCDOT Communications Center, 311, or other Public Channels
- NYCDOT Bridge Repair Section

### State DOT Inspectors

1. State inspectors identify flag conditions.
2. Written notification of flag conditions are sent to the Bridge's Flags unit. (Immediate verbal notification is given for Red Flags and PIA flags.)
3. Flag condition reports are entered into the Division's "City Flag" and "State Flag" database.
4. Flag conditions are reviewed by City engineers who have four routing options:
  - ◆ assign flags to outside agencies for repair, or
  - ◆ have City inspectors monitor flags until further action is desired, or
  - ◆ assign flags to in-house or contractor forces for repair, or
  - ◆ assign flags to the Construction Section for Capital contractor repair.
5. Each flag condition is assigned a City Flag number, and routed to the appropriate group.
6. When flag conditions are eliminated, the respective databases are updated.

### City DOT Division of Bridges Inspectors

1. City inspectors identify flag conditions and prepare a scope of work. (Immediate verbal notification is given for Red Flags and PIA flags.)
2. Flag condition reports are received and reviewed by the Flags unit.
3. Flag condition reports are entered into the "City Flag" database.
4. Flag conditions are reviewed by City engineers who have four routing options:
  - ◆ assign flags to outside agencies for repair, or
  - ◆ have City inspectors monitor flags until further action is desired, or
  - ◆ assign flags to in-house or contractor forces for repair, or
  - ◆ assign flags to the Construction Section for Capital contractor repair.
5. When flag conditions are eliminated, the database is updated.

### City DOT Communications Center, 311, or other Public Channels

1. DOT is alerted to a possible flag condition.
2. City engineers visit the site to review the reported condition.
3. If the deficiency warrants, a verbal flag is communicated and a condition report is filed.
4. Flag condition reports are entered into the "City Flag" database.
5. Flag conditions are reviewed by City engineers who have four routing options:
  - ◆ assign flags to outside agencies for repair, or
  - ◆ have City inspectors monitor flags until further action is indicated, or
  - ◆ assign flags to in-house or contractor forces for repair, or
  - ◆ assign flags to the Construction Section for Capital contractor repair.
6. When flag conditions are eliminated, the database is updated.

### City DOT Bridge Repair Section

1. Bridge Repair personnel complete a Post Flag Request Form for a condition which they have identified and already corrected.
2. Report is entered into the "City Flag" database as an eliminated flag.

Revised 12/1/14

## Appendix C

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### 2014 INVENTORY

Inventory Summary	C-1
Posted, Partially Closed & Closed Bridges	C-2
Bridge Identification Numbers	C-3
New York State Inspection System	C-4
Standard Abbreviations	C-5
Information on Inventory Lists	C-6
Adjustments to the Inventory	C-7
Listing of Bridge Inventory and Conditions	C-8

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### Inventory Summary

In Calendar Year 2014, the total number of bridge and tunnel structures under the jurisdiction of the New York City Department of Transportation (NYCDOT) remained at 789. NYCDOT owns, operates, and/or maintains 759 non-movable bridges, 24 movable bridges, and five tunnels. In 1999, a Memorandum of Understanding between NYCDOT and the New York City Department of Environmental Protection (NYCDEP) added 67 culverts (since reduced to 53) in Staten Island to the Division's Inventory. While the Division is responsible for the capital rehabilitation of these structures, maintenance and inspection responsibilities remain with NYCDEP.

The condition of New York City's 789 elevated bridge structures (including five tunnels), as measured by the City's general condition rating, are as follows: No structures were rated *Poor*, 456 structures were rated *Fair*, 221 structures were rated *Good*, 111 structures were classified *Very Good*, and one structure is not rated (closed).

The bridges in the Division's inventory connect a vast and diverse highway and street network throughout the City. The impressive East River crossings – the Brooklyn, Manhattan, Williamsburg, and Ed Koch Queensboro Bridges – are the most visible and famous structures, but are by no means representative of all the bridges in the City's inventory. Three hundred twenty-four (41.06%) of the Division's structures consist of one span (the portion of a bridge between two supports). One hundred three (13%) bridges carry only pedestrian traffic. Of the 789 structures in the City's inventory, 103 (13.05%) cross waterways; of these, 20 connect the boroughs of the Bronx, Brooklyn, Manhattan and Queens. Three hundred twenty-seven (41.4%) structures cross the City's labyrinthine system of railroad and subway tracks. Two hundred fifty (31.69%) structures cross or connect arterial highways, such as the Henry Hudson Parkway, the Brooklyn-Queens Expressway, and the Belt Parkway, which facilitate traffic flow through and around the five boroughs of the City of New York.

#### Rating System

The Division of Bridges bases its general condition ratings directly on the numerical ratings assigned during bridge inspections. Federal law mandates that bridge structures be inspected at least once every two years. The New York State Department of Transportation hires engineering consultants to perform biennial inspections for all bridge structures except pedestrian bridge structures, and bridge structures less than 20 feet in length. Bridge structures not inspected by the State are inspected by the NYC Department of Transportation's Division of Bridges, with the exception of the East 63<sup>rd</sup> Street Pedestrian Bridge over the FDR Drive, which was inspected by Rockefeller University.

The State inspected 676 (85.68%) bridge structures. The balance of 112 (14.20%) were inspected by the City, with the exception of the High Bridge over the Harlem River, which was inspected in 2002 by the Department of Parks and Recreation. Each structure in a biennial inspection is given an overall numerical condition rating from 1 (structural failure) to 7 (new condition), reflecting a weighting of key features of the structure (see Appendix C-4). In certain cases, where a bridge structure is closed to traffic, only a city condition rating is given.

City condition ratings coincide with the following ranges of State ratings:

<u>State Numerical Rating</u>	=	<u>City Condition Rating</u>
1.000 – 3.000	=	POOR
3.001 – 4.999	=	FAIR
5.000 – 6.000	=	GOOD
6.001 – 7.000	=	VERY GOOD

This method is used as a guide in assessing what operational action is needed. The overall bridge rating, in and of itself, is not always indicative of whether a bridge needs major rehabilitation. Further inspection and analysis must be done to determine specific rehabilitation or corrective repair needs.

### Summary of 2014 Structure Conditions

Rating	Number of Structures	Percent	Number of Spans	Percent	Deck Area Sq Ft	Percent
Poor	0	0.00%	0	0.00%	0	0.00%
Fair	456	57.87%	3,312	76.33%	10,405,676	71.32%
Good	221	28.05%	706	16.27%	2,621,093	17.96%
Very Good	111	14.09%	321	7.40%	1,563,458	10.72%
Not Rated	1	—	—	—	—	—
<b>Total</b>	<b>789</b>	<b>100%</b>	<b>4,339</b>	<b>100%</b>	<b>14,590,227</b>	<b>100.00%</b>

As of December 31, 2014, the condition of the City's bridges and tunnels indicated that 0% were rated as *Poor*; 57.87% were classified as *Fair*; 28.05% were awarded ratings of *Good*; and 14.09% as *Very Good*. Those structures given ratings of *Fair* encompassed 76.33% of bridge spans.

Rating	2011		2012		2013		2014	
Poor	3	0.38%	1	0.13%	1	0.13%	0	0.00%
Fair	459	58.40%	460	58.45%	456	57.87%	456	57.87%
Good	215	27.35%	212	26.94%	217	27.54%	221	28.05%
Very Good	109	13.87%	114	14.49%	114	14.47%	111	14.09%
Not Rated	1		1		1		1	
<b>Total</b>	<b>787</b>	<b>100%</b>	<b>788</b>	<b>100%</b>	<b>789</b>	<b>100%</b>	<b>789</b>	<b>100</b>

During 2014, Manhattan had the highest percentage of bridge structures rated *fair* – 74.43% - as well as the lowest percentage of bridge structures rated *good* – 21.02%. Staten Island had the highest percentage of bridge structures classified as *good* – 43.28%, and the second highest percentage of bridge structures rated *very good* – 17.91%, for a total of 61.19%. In 2014, Brooklyn had the highest percentage of bridge structures rated as *very good* – 22.86%. The Bronx had the second highest percentage of bridge structures classified as *fair* – 62.50%. Queens had the third highest percentage of bridge structures classified as *very good* – 17.68%, and the second highest percentage of bridge structures rated as *good* – 29.80%.

Borough*	Poor	% of Boro	Fair	% of Boro	Good	% of Boro	Very Good	% of Boro	Total
Bronx	0	0.00%	95	62.50%	43	28.29%	14	9.21%	152
Brooklyn	0	0.00%	86	49.14%	49	28.00%	40	22.86%	175
Manhattan	0	0.00%	131	74.43%	37	21.02%	8	4.55%	176
Queens	0	0.00%	104	52.53%	59	29.80%	35	17.68%	198
Staten Island	0	0.00%	26	38.81%	29	43.28%	12	17.91%	67
<b>Total</b>	<b>0</b>	<b>0.00%</b>	<b>442</b>	<b>57.55%</b>	<b>217</b>	<b>28.26%</b>	<b>109</b>	<b>14.19%</b>	<b>768</b>

\* Does not include borough-crossing bridges (see next table).

### Summary of 2014 Structure Conditions

Seventy percent of the 20 bridge structures that service the five boroughs were rated in *fair* condition in 2014, and 30% were rated *good* or *very good*.

Boro-Crossing	Poor	% of Boro Crossing	Fair	% of Boro Crossing	Good	% of Boro Crossing	Very Good	% of Boro Crossing	Total
Bronx-Manhattan	0	0.00%	6	60.00%	2	20.00%	2	20.00%	10
Brooklyn-Manhattan	0	0.00%	4	100.00%	0	0.00%	0	0.00%	4
Queens-Manhattan	0	0.00%	2	66.67%	1	33.33%	0	0.00%	3
Brooklyn-Queens	0	0.00%	2	66.67%	1	33.33%	0	0.00%	3
Total	0	0.00%	14	70.00%	4	20.00%	2	10.00%	20

These figures evidence that the Division is continuing to make progress in improving the conditions of the City's bridges. The number of bridges rated *Poor* and *Fair* has decreased over the past few years while the number of bridges rated *Good* and *Very Good* has increased. However, it continues to remain essential that the overall bridge program include an expansion of the Preventive Maintenance and Corrective Repair programs which have traditionally slowed the deterioration of *good* and *very good* bridges.

During 2014, the total number of closed or partially closed bridge structures was four, with one closed and three partially-closed structures (see Appendix C-2).

**Bridges with Posted Weight Restrictions**  
**NEW YORK CITY DEPARTMENT OF TRANSPORTATION**

BIN	BOROUGH	LOCATION FEATURE-1	LOCATION FEATURE-2	LOCATION FEATURE-3	FISCAL YEAR*	POSTED TONS	REMARKS
2231450	BROOKLYN	BELT SHORE PARKWAY	GERRITSEN INLET		2012	5	CONDITION OF MILL BASIN BRIDGE
2231479	BROOKLYN	BELT SHORE PARKWAY	MILL BASIN CREEK		2016	5	
	MANHATTAN	FDR DRIVE (NB & SB)	23 <sup>RD</sup> TO 63 <sup>RD</sup> STREET			4	PASSENGER CARS ONLY
2240019	BROOKLYN & MANHATTAN	BROOKLYN BRIDGE	EAST RIVER	INCLUDING RAMPS	2009	3	NO COMMERCIAL TRAFFIC NO TRUCKS, NO BUSES; 11'0" CLEARANCE
2240039	BROOKLYN & MANHATTAN	WILLIAMSBURG BRIDGE	EAST RIVER				INNER ROADWAYS, <u>NO TRUCKS</u> ; OUTER ROADWAYS DESIGN FOR HS20 [36 TONS] AND TRUCKS ARE PERMITTED ON OUTER ROADWAY
2240047	MANHATTAN & QUEENS	ED KOCH QUEENSBORO BRIDGE	EAST RIVER			7.5	LOWER OUTER ROADWAYS POSTED AS H-7.5 [7.5 TONS] (PASSENGER CARS ONLY FOR SOUTHBOUND; PEDESTRIANS AND BICYCLES ONLY FOR NORTHBOUND); LOWER INNER ROADWAYS ARE DESIGNED FOR HS20 TRUCK LOAD [36 TONS]; UPPER ROADWAYS DESIGNED FOR H-15 [15 TONS], <u>NO TRUCKS</u> , <u>ONLY BUSES</u>
2240260	BROOKLYN	CARROLL STREET BRIDGE	GOWANUS CANAL	CARROLL STREET		10	
2240640	MANHATTAN & QUEENS	ROOSEVELT ISLAND	EAST CHANNEL OF THE EAST RIVER			36	
2240660	QUEENS	RIKERS ISLAND BRIDGE	RIKERS ISLAND CHANNEL			36	
2246550	MANHATTAN	PARK AVENUE VIADUCT	42 <sup>ND</sup> STREET			15	NO COMMERCIAL TRAFFIC
2247590	QUEENS	FOREST PARK DRIVE	LIRR			8	
2247660	QUEENS	FOREST PARK DRIVE	ABANDONED LIRR			8	
2245460	MANHATTAN	PARK AVENUE SB	EAST 45 <sup>TH</sup> STREET			15	NO COMMERCIAL TRAFFIC
2245470	MANHATTAN	PARK AVENUE NB	EAST 45 <sup>TH</sup> STREET			15	NO COMMERCIAL TRAFFIC
2244120	BROOKLYN	HILL DRIVE	PROSPECT PARK LAKE				NO VEHICLES
226771A**	MANHATTAN	79 <sup>TH</sup> STREET RAMP TO HHP	79 <sup>TH</sup> STREET BOAT BASIN GARAGE			15	
226771B**	MANHATTAN	79 <sup>TH</sup> STREET RAMP TO GARAGE	79 <sup>TH</sup> STREET BOAT BASIN GARAGE			15	
226771C**	MANHATTAN	GARAGE RAMP TO 79 <sup>TH</sup> STREET	79 <sup>TH</sup> STREET BOAT BASIN GARAGE			15	
226771D**	MANHATTAN	SB HHP RAMP TO 79 <sup>TH</sup> STREET	79 <sup>TH</sup> STREET BOAT BASIN GARAGE			15	
2240507**	QUEENS	ROOSEVELT AVENUE BRIDGE	VAN WYCK EXPRESSWAY		2015	25	
2247120**	QUEENS	WOODSIDE AVENUE BRIDGE	LIRR MAIN LINE			8	

21 COUNT

\* - CONSTRUCTION CONTRACT LETTING

2/28/15

**Partially Closed Bridges**  
**NEW YORK CITY DEPARTMENT OF TRANSPORTATION**

BIN	BOROUGH	LOCATION FEATURE-1	LOCATION FEATURE-2	LOCATION FEATURE-3	FISCAL YEAR*	REMARKS
2076640	BRONX	DEPOT PLACE	CONRAIL HUDSON DIVISION			ONE LANE CLOSED TO TRAFFIC (BUT OPEN TO PEDESTRIANS AND BICYCLES), AND ONE LANE OPEN
2244120	BROOKLYN	HILL DRIVE	PROSPECT PARK LAKE		CONSTRUCTION MOVED DUE TO LACK OF FUNDING	CLOSED TO VEHICULAR TRAFFIC, OPEN TO PEDESTRIAN TRAFFIC, ALONG THE CENTER OF THE ROADWAY.
2247080	QUEENS	149 <sup>TH</sup> STREET	LIRR		FY'16	CLOSED TO VEHICULAR TRAFFIC, BUT OPEN TO PEDESTRIANS AND BICYCLES.

3 COUNT

\* - CONSTRUCTION CONTRACT LETTING



Carroll Street, Gerritsen Inlet, Mill Basin, and Roosevelt Avenue Bridge Posted Weight Restriction Signs. (Carroll Street, Gerritsen Inlet, and Roosevelt Avenue Credit: NYSDOT) Madison Avenue Bridge Posted Weight Restriction in Effect in 1959.

## Closed Bridges

### NEW YORK CITY DEPARTMENT OF TRANSPORTATION

There is one closed bridge.

BIN	BOROUGH	LOCATION FEATURE-1	LOCATION FEATURE-2	LOCATION FEATURE-3	REMARKS
2248130	QUEENS	FLUSHING MEADOW PARK PEDESTRIAN	WILLOW LAKE	76 <sup>th</sup> ROAD	BRIDGE IS IN FLUSHING CORONA PARK, WHICH IS IN A REMOTE LOCATION AND WAS DAMAGED BY FIRE.

10/20/09, no change 2014

## Bridge Identification Numbers

In 1972, the State of New York developed a computerized system to store inventory and inspection data on bridges that are greater than 20 feet in length. In New York City, structures that are 20 feet in length or less, “mini-bridges,” are tracked independently by the City. Each structure is distinguished by a separate Bridge Identification Number (B.I.N.).

A six-digit B.I.N. identifies a single structure or group of connected or associated structures, while the seven-digit B.I.N. identifies each of those connected or associated bridge structures individually. Each level of a bi-level bridge, each separate bridge structure in a parallel configuration, and each ramp attached to a main bridge is considered an individual structure and assigned its own unique B.I.N. for example, the Brooklyn Bridge has one six-digit B.I.N., 2-24002, which incorporates the entire bridge. All ramps and secondary structures, as well as the main structure, are identified by their own seven-digit numbers, such as 2-24001-A, 2-24001-B, etc.

### **If the prefix (first number) of the B.I.N. is:**

**1**, the bridge is considered part of the **State** bridge system. This number might include City bridges if maintenance is shared between City and State.

**2**, the bridge is considered part of the **City** bridge system. This number might include State bridges if maintenance is shared between City and State.

**M, Q, or R**, the bridge is a “mini-bridge,” and is considered part of the **City** bridge system. They are located in Manhattan, Queens, or Staten Island, respectively.

### **If the suffix (last character) of the B.I.N. is:**

**1 through 6**, the bridge is in parallel configuration. The left-most bridge in the Direction of Orientation has a last character of 1. The next left-most bridge has a last character of 2, and so on.

**7 or 8**, the bridge is in a bi-level configuration. Seven indicates the lower level and eight indicates the upper level.

**0 or 9**, the bridge is not in parallel or bi-level configuration.

**A letter of the alphabet**, the structure is a ramp physically attached to the main bridge. If more than one ramp is attached to the same span of the main bridge, the characters are assigned alphabetically starting with the left-most ramp in the Direction of Orientation. Other ramps attached to the bridge are assigned alphabetical characters in a clockwise direction.

### New York State Biennial Bridge Inspection and Condition Rating System

During the regularly scheduled State biennial bridge inspections, each bridge element is investigated and its structural condition is numerically rated according to the system indicated below:

<u>Numerical Rating</u>	<u>Description</u>
1	Potentially Hazardous
2	Used to shade between a rating of 1 and 3
3	Serious deterioration, or not functioning as originally designed
4	Used to shade between a rating of 3 and 5
5	Minor deterioration, and is functioning as originally designed
6	Used to shade between a rating of 5 and 7
7	New condition
8	Not Applicable
9	Unknown (due to inaccessibility, e.g. footings or piles)

Based on these individual ratings for each element, a weighted average rating is computed for the entire structure.

These ratings (both individual and weighted average) are recorded on New York State Department of Transportation Inspection report Forms. Together with photographs and explanatory descriptions, the ratings provide the Division with information on the existing condition of each bridge.

A description of the condition ratings 1 through 7, with programmed responses to certain critical ratings, demonstrates the importance of these inspections:

A rating of 1 describes an extremely serious condition which is deemed potentially hazardous. This rating, which is phoned in by the inspection leader, necessitates that the Division respond immediately by 1) closing the structure either completely or partially until emergency repairs are made, or 2) limiting the vehicle weight permitted on the structure and then performing repairs on a timely basis.

A rating of 3 describes a bridge element that is not functioning as designed. Although not considered hazardous, such members require extensive rehabilitation. A determination is then made to repair such rated members either by the Division's in-house repair personnel, the critical maintenance contractor (When and Where contracts), or a major capital contract. Until such repairs are made, this condition is periodically monitored.

A rating of 5 indicates the member is functioning as designed but exhibits minor deterioration. These members are prioritized and scheduled for repair by the Bridge Maintenance, Inspection and Operations Bureau.

A rating of 7 indicates a new condition requiring no remediation.

The ratings of 2, 4, and 6 are utilized to shade between each of the above ratings.



**Standard Abbreviations**

**General Abbreviations :**

APP:	Approach	NB:	Northbound
AVE:	Avenue	PED BR:	Pedestrian Bridge
BLVD:	Boulevard	PKWY:	Parkway
BR:	Bridge	PL:	Place
CPK:	Central Park	RD:	Road
DR:	Drive	SB:	Southbound
EB:	Eastbound	ST:	Street
EXPWY:	Expressway	TPKE:	Turnpike
I:	Interstate	WB:	Westbound
LN:	Lane		
X:	No State accepted mileage markers exist on this route		



Assistant Civil Engineer Andrew Hoang  
Inspecting the Brooklyn Bridge.  
(Credit: Clara Medina)

**Routes :**

<u>No.</u>	<u>Borough</u>	<u>Name</u>
25	Queens	Union Turnpike
25A	Queens	Northern Boulevard
27	Brooklyn	Southern Parkway
I-87	Manhattan, Bronx	Major Deegan Expressway
I-95	Manhattan, Bronx	Cross Bronx Expressway
I-278	Brooklyn, Queens	Brooklyn-Queens Expressway
I-278	Bronx	Bruckner Expressway
I-278	Staten Island	Staten Island Expressway
I-295	Queens	Clearview Expressway
I-295	Bronx	Throgs Neck Expressway
I-440	Staten Island	Richmond Parkway
I-478	Brooklyn	Brooklyn Battery Tunnel
I-495	Queens	Long Island Expressway
I-678	Queens	Whitestone Expressway, Van Wyck
I-878	Queens	Nassau Expressway
I-895	Bronx	Sheridan Expressway

## Standard Abbreviations

### Highways :

BCIP:	Belt System - Cross Island
BE:	Bruckner Expressway
BLP:	Belt System - Laurelton Parkway
BPP:	Bronx Pelham Parkway
BQE:	Brooklyn-Queens Expressway
BRPC:	Bronx River Parkway (in NYC)
BSHP:	Belt System - Shore Parkway
BSOP:	Belt System - Southern Parkway
CBE:	Cross Bronx Expressway
FDRD:	Franklin D. Roosevelt Drive
GCP:	Grand Central Parkway
GW:	George Washington Bridge
HHP:	Henry Hudson Parkway
HRD:	Harlem River Drive
HRPC:	Hutchinson River Parkway (in NYC)
IP:	Jackie Robinson (Interborough) Parkway
LIE:	Long Island Expressway
MAP:	Marine Parkway
MDE:	Major Deegan Expressway
MP:	Mosholu Parkway
OCP:	Ocean Parkway
PR:	Prospect Expressway
RP:	Richmond Parkway
VWE:	Van Wyck Expressway
WLMBRG:	Williamsburg Bridge
WSE:	West Shore Expressway

**Information Available On Division Of Bridges Inventory Of Structures**

- **Bridge Identification Number (B.I.N.)**
- **Borough :**
  - B - The Bronx
  - K - Brooklyn
  - Q - Queens
  - M - Manhattan
  - R - Staten Island
- **Feature Carried :** Name of passageway carrying vehicle or pedestrian traffic.
- **Feature Crossed :** Description of area crossed.
  - **Railroad Crossed** (if applicable):
    - A - Amtrak
    - C - CSX
    - L - Long Island Railroad
    - M - Metro-North (MTA)
    - N - New York & Atlantic
    - O - B & O Railroad
    - S - Staten Island Rapid Transit Operating Authority
    - T - NYC Transit Authority
  - **Other Owner :**
    - ED Department of Education
    - F Ferries (Department of Transportation)
    - P Department of Parks and Recreation
- **Bridge Type :**
  - A Arterial
  - E East River
  - M Movable
  - O Off-System
  - PED Pedestrian
  - R Ramp
  - T Tunnel
  - W Waterway
- **Rating Source:**
  - (C) City Inspection
  - (S) State Inspection
  - (P) Parks Inspection
  - (U) Rockefeller University Inspection
- **Rating :** Numerical and/or verbal rating
  - 1.000 - 3.000: (P) POOR
  - 3.001 - 4.999: (F) FAIR
  - 5.000 - 6.000: (G) GOOD
  - 6.001 - 7.000: (V) VERY GOOD
- **Deck Area:** Square feet
- **CD:**
  - Community Board District

**2014 Bridge Inventory Adjustments**

There were no bridges removed from or added to the City's inventory since the *2013 Annual Report* was issued.

REV. DATE 3/2015

**INVENTORY SORTED BY B.I.N.**

BIN	BORO	FEATURE CARRIED	FEATURE CROSSED	RAIL L RO	BRIDGE TYPE	OTHER OWNER	SPA NS	RT NG SR	Inspection Date	Condition Rating	VR BL RT	DECK AREA	REPLACEMENT COST	CD	CD2	CD3
1065210	O	WHITESTONE EXPRESSWAY NORTHBOUND	BCIP		A		1	S	6/17/2014	4.656	F	2,500	\$11,062,500	407		
1066510	B	BRUCKNER EXPRESSWAY SERVICE ROAD	WESTCHESTER CREEK		WMA		17	S	9/17/2014	3.226	F	39,400	\$174,345,000	209		
1067150	B	NEREID AVE (EAST 240TH STREET)	BRONX RIVER PARKWAY	M	O		10	S	10/19/2013	4.632	F	57,750	\$255,543,750	212		
1240090	BM	MACCOMBS DAM BRIDGE	HARLEM RIVER	M	WMO		52	S	12/13/2013	3.986	F	220,000	\$973,500,000	110	204	
1247010	O	91ST PLACE (2247010)	LIRR PT WASH BR	L	O		1	S	9/3/2013	6.500	VG	2,760	\$12,213,000	404		
1247200	O	67TH AVENUE PEDESTRIAN BRIDGE (2247200)	LIRR MAIN LINE	L	O-PED		3	C	9/24/2014	4.219	F	1,300	\$5,752,500	406		
1247280	O	51ST AVENUE PEDESTRIAN BRIDGE (2247280)	LIRR MAIN LINE	L	O-PED		5	C	10/8/2013	3.018	F	700	\$3,097,500	402		
1247560	O	METROPOLITAN AVENUE	LIRR - NY&ATL	LN	O		2	S	9/23/2014	3.603	F	20,900	\$92,482,500	405		
2055801	O	NORTHERN BOULEVARD WESTBOUND	FLUSHING RIVER		WO		40	S	11/21/2012	4.338	F	71,900	\$318,157,500	407		
2055802	O	NORTHERN BOULEVARD EASTBOUND	FLUSHING RIVER		WO		40	S	10/28/2014	4.268	F	78,894	\$349,105,950	407		
205580A	O	NORTHERN BOULEVARD WESTBOUND TO 678I SOUTHBOUND	VACANT LAND		AR		16	S	6/5/2014	5.619	G	8,600	\$38,055,000	407		
2065629	B	BRONX RIVER PARKWAY	BOSTON ROAD - BX ZOO		A		1	S	8/14/2013	5.138	G	6,300	\$27,877,500	227		
2065930	O	HAMILTON PLACE	495I (L.I.E.)		A		2	S	2/20/2014	5.528	G	11,111	\$49,166,175	405		
2065940	O	GRAND AVENUE	495I (L.I.E.)		A		2	S	11/11/2014	4.861	F	12,850	\$56,861,250	405		
2065950	O	69TH STREET	495I (L.I.E.)		A		2	S	7/8/2013	5.250	G	10,336	\$45,736,800	405		
2066002	O	495I (2066000)	WOODHAVEN BOULEVARD		A		2	S	5/23/2013	5.620	G	25,200	\$111,510,000	406	404	
2066100	K	5TH AVENUE	27 X PROSPECT EXPRESSWAY		A		1	S	4/22/2014	5.063	G	8,800	\$38,940,000	307		
2066671	B	BRUCKNER EXPRESSWAY SOUTHBOUND	BRONX RIVER		WA		3	S	10/15/2013	5.222	G	12,400	\$54,870,000	202	209	
2066672	B	BRUCKNER EXPRESSWAY NORTHBOUND	BRONX RIVER		WA		8	S	10/15/2013	4.418	F	22,300	\$98,677,500	202	209	
2066720	B	EAST 174TH STREET	SHERIDAN EXPRESSWAY/AMTRAK	A	A		13	S	7/29/2014	3.986	F	35,573	\$157,410,525	209	203	
206672A	B	174TH STREET-NORTH PEDESTRIAN BRIDGE	895I - SHERIDAN EXPRESSWAY		A-PED		4	C	4/1/2014	4.667	F	1,800	\$7,965,000	209		
206672B	B	174TH STREET-SOUTH PEDESTRIAN BRIDGE	895I - SHERIDAN EXPRESSWAY		A-PED		4	C	4/1/2014	4.750	F	1,900	\$8,407,500	209		
2066919	BM	WASHINGTON BRIDGE	HARLEM RIVER	M	WO		9	S	11/29/2012	4.642	F	128,339	\$567,900,075	112	205	204
2075351	B	BRUCKNER EXPRESSWAY SOUTHBOUND	AMTRAK - CSX	AC	A		1	S	10/29/2014	5.698	G	11,600	\$51,330,000	202		
2075352	B	BRUCKNER EXPRESSWAY NORTHBOUND	AMTRAK - CSX	AC	A		1	S	10/30/2014	6.190	VG	10,900	\$48,232,500	202		
2075820	B	EAST TREMONT AVENUE	HUTCHINSON RIVER PARKWAY		A		2	S	11/21/2013	4.444	F	10,200	\$45,135,000	210		
2075837	B	WESTCHESTER AVENUE	HUTCHINSON RIVER PARKWAY		A		2	S	2/27/2014	4.097	F	15,858	\$70,171,650	210	211	
2075849	B	BRONX PELHAM PARKWAY	HUTCHINSON RIVER PARKWAY		A		2	S	5/8/2014	3.974	F	17,600	\$77,880,000	210	211	
2075859	B	HUTCHINSON RIVER PARKWAY	HUTCHINSON RIVER		WMA		7	S	11/7/2014	4.828	F	60,500	\$267,712,500	210	228	
2076109	B	BE NORTHBOUND SERVICE ROAD	HUTCHINSON RIVER PARKWAY		A		2	S	8/15/2013	5.105	G	7,800	\$34,515,000	210		
2076129	B	BE SOUTHBOUND SERVICE ROAD	HUTCHINSON RIVER PARKWAY		A		2	S	1/16/2014	5.079	G	7,100	\$31,417,500	210		
2076640	B	DEPOT PLACE	METRO NORTH RR HUD	CM	O		11	S	5/16/2014	4.653	F	26,566	\$117,554,550	204		
2076929	B	BRUCKNER EXPRESSWAY	CSX - HUNTS POINT	C	A		1	S	8/28/2013	4.567	F	3,800	\$16,815,000	202		
2229289	M	HHP VIADUCT	AMTRAK - WEST 72ND STREET - WEST 79TH STREET	A	A		145	S	9/17/2014	3.597	F	213,173	\$943,290,525	107		
222928C	M	PEDESTRIAN BRIDGE AT WEST 73RD STREET	HHP - AMTRAK	A	A-PED	P	5	C	8/12/2013	3.812	F	3,700	\$16,372,500	107		
222928D	M	WEST 72ND STREET RAMP TO HHP NORTHBOUND	RELIEF		AR		1	S	7/18/2014	6.648	VG	1,750	\$7,743,750	107		
2229290	M	WEST 79TH STREET	AMTRAK	A	A		1	S	6/11/2014	4.424	F	4,500	\$19,912,500	107		

**INVENTORY SORTED BY B.I.N.**

BIN	BORO	FEATURE CARRIED	FEATURE CROSSED	RAIL L RO	BRIDGE TYPE	OTHER OWNER	SPA NS	RT NG SR	Inspection Date	Condition Rating	VR BL RT	DECK AREA	REPLACEMENT COST	CD	CD2	CD3
2229309	M	HHP	RIVERSIDE PARK		A		1	S	1/13/2014	5.267	G	2,172	\$9,611,100	107		
2229311	M	HHP SOUTHBOUND	RAMP TO WEST 96TH STREET		A		1	S	1/28/2014	4.455	F	2,000	\$8,850,000	107		
2229312	M	HHP NORTHBOUND	RAMP TO WEST 96TH STREET		A		1	S	1/27/2014	4.182	F	2,000	\$8,850,000	107		
2229321	M	HHP SOUTHBOUND	RAMP FROM WEST 96TH STREET		A		1	S	1/31/2014	5.133	G	2,000	\$8,850,000	107		
2229322	M	HHP NORTHBOUND	RAMP FROM WEST 96TH STREET		A		1	S	1/31/2014	5.300	G	2,000	\$8,850,000	107		
2229349	M	HHP	WEST 158TH STREET	A	A		44	S	10/10/2014	4.155	F	140,000	\$619,500,000	109	112	
222934A	M	RAMP TO NORTHBOUND HHP	AMTRAK WEST SIDE	A	AR		26	S	6/30/2014	3.764	F	10,800	\$47,790,000	112		
2229400	M	WEST 181ST STREET PEDESTRIAN BRIDGE	HHP NORTHBOUND		A-PED	P	7	C	2/25/2014	4.493	F	1,500	\$6,637,500	112		
2229440	B	HHP	KAPPOCK ST		A		1	S	7/18/2013	4.931	F	3,900	\$17,257,500	208		
2229450	B	WEST 232ND STREET	HHP		A		2	S	7/22/2013	5.026	G	4,900	\$21,682,500	208		
2229460	B	WEST 236TH STREET PEDESTRIAN BRIDGE	HHP		A-PED		3	C	7/7/2014	4.443	F	2,500	\$11,062,500	208		
2229470	B	WEST 239TH STREET	HHP		A		2	S	6/3/2013	5.053	G	6,100	\$26,992,500	208		
2229480	B	MANHATTAN COLLEGE PARKWAY	HHP		A		3	S	6/3/2013	5.053	G	6,200	\$27,435,000	208		
2229490	B	WEST 246TH STREET	HHP		A		2	S	6/3/2013	4.868	F	5,600	\$24,780,000	208		
2229500	B	WEST 252ND STREET	HHP		A		2	S	1/27/2014	5.372	G	4,500	\$19,912,500	208		
2229510	B	RIVERDALE AVENUE	HHP		A		2	S	7/22/2013	5.079	G	5,200	\$23,010,000	208		
2229520	B	FIELDSTON ROAD	HHP		A		1	S	7/29/2013	4.900	F	6,600	\$29,205,000	208		
2229530	B	HHP	BROADWAY		A		1	S	7/29/2013	4.574	F	7,500	\$33,187,500	208		
2229540	B	VAN CORTLANDT PARK	HHP		A-PED	P	2	C	7/14/2014	4.759	F	3,900	\$17,257,500	226		
2229550	B	VAN CORTLANDT EQUESTRIAN	HHP		A-PED	P	2	C	7/16/2014	4.440	F	2,100	\$9,292,500	226		
2229560	B	BRONX PELHAM PARKWAY	AMTRAK - CSX	AC	A		3	S	11/12/2014	4.486	F	24,591	\$108,815,175	211		
2229579	B	BOSTON ROAD	HUTCHINSON RIVER		WO		14	S	5/9/2014	4.042	F	95,700	\$423,472,500	212		
2230000	K	HIGHLAND BOULEVARD EASTBOUND	JACKIE ROBINSON PARKWAY		A		1	S	3/17/2014	4.724	F	4,900	\$21,682,500	305		
2230010	K	HIGHLAND BOULEVARD WESTBOUND	JACKIE ROBINSON PARKWAY		A		1	S	2/25/2014	4.767	F	3,500	\$15,487,500	305		
2230020	K	HIGHLAND BOULEVARD WESTBOUND	JACKIE ROBINSON PARKWAY EASTBOUND ENTRANCE RAMP		A		2	S	3/11/2014	4.974	F	4,700	\$20,797,500	305		
2230040	O	CYPRESS HILLS STREET	JACKIE ROBINSON PARKWAY		A		1	S	3/28/2014	4.722	F	5,000	\$22,125,000	405		
2230099	O	JACKIE ROBINSON PARKWAY	CYPRESS HILLS CEMETERY		A		1	S	1/6/2014	5.444	G	4,200	\$18,585,000	405		
2230120	O	MYRTLE AVENUE	JACKIE ROBINSON PARKWAY		A		1	S	4/17/2014	5.250	G	6,400	\$28,320,000	405	482	
2230179	O	JACKIE ROBINSON PARKWAY	METROPOLITAN AVENUE		A		2	S	4/22/2014	5.286	G	8,673	\$38,378,025	482		
2230180	O	UNION TURNPIKE	JACKIE ROBINSON PARKWAY		A		1	S	1/27/2014	5.672	G	5,359	\$23,713,575	482		
2230190	O	MARKWOOD ROAD	JACKIE ROBINSON PARKWAY		A		1	S	1/27/2014	5.167	G	4,400	\$19,470,000	482	406	
2230209	O	QUEENS BOULEVARD	JACKIE ROBINSON PARKWAY	T	A		5	S	6/9/2014	4.841	F	37,700	\$166,822,500	409		
2230220	K	HIGHLAND BOULEVARD NORTHBOUND	VERMONT AVENUE		A		1	S	6/5/2013	5.857	G	3,995	\$17,677,875	305		
2230250	B	MOSHOLU PARKWAY	BRONX RIVER		WA		5	S	1/8/2014	4.263	F	16,300	\$72,127,500	227		
2230260	B	MOSHOLU PARKWAY	METRO NORTH	M	A		1	S	4/30/2014	5.391	G	8,880	\$39,294,000	227	207	
2230270	B	MOSHOLU PARKWAY	WEBSTER AVENUE		A		1	S	5/21/2013	5.203	G	8,480	\$37,524,000	207		
2230287	B	JEROME AVENUE	MOSHOLU PARKWAY	T	A		3	S	5/22/2013	4.816	F	11,800	\$52,215,000	207		

**INVENTORY SORTED BY B.I.N.**

BIN	BORO	FEATURE CARRIED	FEATURE CROSSED	RAIL L RO	BRIDGE TYPE	OTHER OWNER	SPA NS	RT NG SR	Inspection Date	Condition Rating	VR BL RT	DECK AREA	REPLACEMENT COST	CD	CD2	CD3
2230290	B	MOSHOLU PARKWAY	EQUESTRIAN PATH		A		1	S	1/13/2014	4.310	F	4,300	\$19,027,500	226		
2230300	B	MOSHOLU PARKWAY	CONRAIL (ABANDONED)	C	A		1	S	7/31/2014	4.271	F	4,600	\$20,355,000	226		
2230310	B	MOSHOLU PARKWAY	SOUTHBOUND RAMP TO HHP		A		2	S	9/16/2013	4.919	F	7,400	\$32,745,000	226		
2230350	K	SUMMIT STREET PEDESTRIAN BRIDGE	278I (B.Q.E.)		A-PED		2	S	4/4/2014	4.557	F	1,400	\$6,195,000	306		
2230360	K	UNION STREET	278I (B.Q.E.)		A		2	S	3/19/2014	4.236	F	5,000	\$22,125,000	306		
2230370	K	SACKETT STREET	278I (B.Q.E.)		A		2	S	3/19/2014	4.500	F	5,000	\$22,125,000	306		
2230380	K	KANE STREET	278I (B.Q.E.)		A		2	S	3/27/2014	4.153	F	5,000	\$22,125,000	306		
2230390	K	CONGRESS STREET	278I (B.Q.E.)		A		2	S	3/27/2014	6.029	VG	5,000	\$22,125,000	306		
2230410	K	278I EASTBOUND (B.Q.E.)	WASHINGTON STREET		A		1	S	7/16/2014	4.500	F	2,500	\$11,062,500	302		
2230420	K	278I WESTBOUND (B.Q.E.)	WASHINGTON STREET		A		1	S	7/16/2014	5.047	G	2,500	\$11,062,500	302		
2230430	K	278I (B.Q.E.) RAMP TO BROOKLYN BRIDGE	PROSPECT STREET		A		1	S	1/6/2014	5.000	G	1,100	\$4,867,500	302		
2230440	K	278I WESTBOUND (B.Q.E.)	ADAMS STREET		A		1	S	1/15/2014	5.200	G	2,700	\$11,947,500	302		
2230450	K	278I EASTBOUND (B.Q.E.)	ADAMS STREET		A		1	S	1/15/2014	4.933	F	2,500	\$11,062,500	302		
2230460	K	278I (B.Q.E.)	PEARL STREET		A		1	S	1/15/2014	5.467	G	4,500	\$19,912,500	302		
2230470	K	278I (B.Q.E.)	JAY STREET		A		1	S	1/15/2014	4.833	F	5,100	\$22,567,500	302		
2230480	K	278I (B.Q.E.)	PROSPECT STREET		A		1	S	2/21/2014	4.852	F	8,400	\$37,170,000	302		
2230490	K	278I (B.Q.E.)	SANDS STREET		A		1	S	2/27/2014	5.019	G	12,600	\$55,755,000	302		
2230500	K	278I (B.Q.E.)	RAMP TO BOE EASTBOUND		A		1	S	2/10/2014	4.967	F	1,300	\$5,752,500	302		
2230510	K	278I (B.Q.E.)	NASSAU STREET		A		6	S	7/3/2014	5.169	G	51,200	\$226,560,000	302		
2230520	O	65TH PLACE	278I (B.Q.E.)		A		2	S	2/6/2014	5.889	G	11,668	\$51,630,900	402		
2230530	O	QUEENS BOULEVARD	278I (B.Q.E.)		A		2	S	10/22/2014	6.306	VG	25,543	\$113,027,775	402		
2230540	O	WOODSIDE AVENUE	278I (B.Q.E.)		A		1	S	1/31/2014	5.672	G	7,529	\$33,315,825	402		
2230550	O	69TH STREET	278I (B.Q.E.)		A		2	S	1/31/2014	5.263	G	12,600	\$55,755,000	402		
2230560	O	70TH STREET	278I (B.Q.E.)		A		2	S	10/22/2014	6.556	VG	8,580	\$37,966,500	402		
2230570	O	41ST AVENUE	278I (B.Q.E.)		A		2	S	10/22/2014	6.735	VG	8,580	\$37,966,500	402		
2230587	O	ROOSEVELT AVENUE	278I (B.Q.E.)		A		2	S	9/24/2013	5.889	G	11,022	\$48,772,350	402		
2230590	O	BROADWAY	278I (B.Q.E.)		A		2	S	12/6/2012	5.789	G	16,000	\$70,800,000	402		
2230600	O	STEINWAY STREET	278I WESTBOUND (BOE)		A		1	S	8/7/2014	6.349	VG	5,229	\$23,138,325	401		
2230610	O	STEINWAY STREET	278I EASTBOUND (BOE)		A		1	S	8/8/2014	6.349	VG	5,146	\$22,771,050	401		
2230620	O	37TH STREET	278I (B.Q.E.)		A		2	S	3/12/2014	4.681	F	5,300	\$23,452,500	401		
2230630	O	35TH STREET	278I (B.Q.E.)		A		4	S	3/14/2014	4.667	F	9,000	\$39,825,000	401		
2230640	O	32ND STREET	278I (B.Q.E.)		A		2	S	6/6/2013	4.875	F	8,100	\$35,842,500	401		
2230657	O	31ST STREET	278I (B.Q.E.)		A		2	S	12/5/2012	4.569	F	9,500	\$42,037,500	401		
2230669	O	278I (B.Q.E.)	35TH AVENUE		A		1	S	8/2/2013	6.390	VG	13,135	\$58,122,375	402		
2230679	O	278I (B.Q.E.)	34TH AVENUE		A		1	S	5/17/2013	6.068	VG	7,793	\$34,484,025	402		
2230680	O	278I (B.Q.E.)	NORTHERN BOULEVARD		A		1	S	11/5/2014	6.016	VG	27,011	\$119,523,675	402	401	
2230690	O	278I NORTHBOUND (BOE WEST LEG)	32ND AVENUE		A		1	S	6/2/2014	6.407	VG	4,080	\$18,054,000	401		

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2230700	O	278I NORTHBOUND (BOE EAST LEG)	32ND AVENUE (TO BOE WEST LEG)		A		8	S	11/5/2014	6.352	VG	31,600	\$139,830,000	401	403	
2230710	O	278I SOUTHBOUND (BOE WEST LEG)	32ND AVENUE		A		1	S	6/28/2013	6.424	VG	5,240	\$23,187,000	401		
2230720	O	278I SOUTHBOUND (BOE EAST LEG)	278I NORTHBOUND (BOE WEST LEG)		A		3	S	6/25/2013	6.182	VG	20,896	\$92,464,800	401		
2230730	O	31ST AVENUE	278I NORTHBOUND (BOE WEST LEG)		A		1	S	6/25/2013	6.217	VG	5,875	\$25,996,875	401		
2230740	O	278I SOUTHBOUND (BOE WEST LEG)	31ST AVENUE		A		1	S	6/27/2013	6.217	VG	5,246	\$23,213,550	401		
2230750	O	278I SOUTHBOUND (BOE EAST LEG)	31ST AVENUE		A		1	S	6/27/2013	6.508	VG	4,221	\$18,677,925	401	403	
2230760	O	278I NORTHBOUND (BOE EAST LEG)	31ST AVENUE		A		1	S	7/23/2014	6.356	VG	4,161	\$18,412,425	401		
2230770	O	278I (BOE WEST LEG)	30TH AVENUE		A		1	S	5/24/2013	6.322	VG	6,199	\$27,430,575	401		
2230780	O	278I (BOE EAST LEG)	30TH AVENUE		A		1	S	5/24/2013	6.206	VG	7,071	\$31,289,175	403	401	
2230790	O	BULOVA AVENUE	278I (BOE WEST LEG)		A		2	S	4/4/2014	5.278	G	3,300	\$14,602,500	401		
2230800	O	49TH STREET	278I (BOE WEST LEG)		A		2	S	4/7/2014	5.278	G	4,900	\$21,682,500	401		
2230810	O	ASTORIA BOULEVARD EASTBOUND	278I (BOE WEST LEG)		A		4	S	3/14/2014	4.279	F	8,200	\$36,285,000	401		
2230820	O	47TH STREET	GCP		A		2	S	4/28/2014	4.889	F	5,700	\$25,222,500	401		
2230830	O	278I NORTHBOUND (BOE WEST LEG)	GCP		A		2	S	4/28/2014	4.583	F	7,600	\$33,630,000	401		
2230840	O	44TH STREET	GCP		A		2	S	5/13/2014	4.764	F	5,000	\$22,125,000	401		
2230857	K	278I WESTBOUND (B.O.E.)	JORALEMON STREET		A		1	S	3/11/2014	5.000	G	2,100	\$9,292,500	302		
2230858	K	278I EASTBOUND (B.O.E.)	JORALEMON STREET / BOE WESTBOUND		A		1	S	11/5/2013	4.619	F	5,900	\$26,107,500	302		
2230869	O	QUEENS BOULEVARD	ACCESS RD BOE SOUTHBOUND		A		1	S	9/30/2014	5.659	G	7,900	\$34,957,500	402		
2230870	K	COLUMBIA HEIGHTS	278I (B.O.E.)		A		1	S	8/7/2014	4.450	F	16,500	\$73,012,500	302		
2230887	K	278I WESTBOUND (B.O.E.)	CADMAN PLAZA		A		2	S	7/25/2014	4.403	F	4,500	\$19,912,500	302		
2230888	K	278I EASTBOUND (B.O.E.)	CADMAN PLAZA / 278I WESTBOUND		A		2	S	7/28/2014	5.263	G	4,500	\$19,912,500	302		
2230890	O	49TH STREET	GCP		A		2	S	5/15/2014	4.444	F	6,350	\$28,098,750	401		
2231249	K	BSHP	BAY RIDGE AVENUE		A		1	S	3/26/2014	3.625	F	4,900	\$21,682,500	310		
2231250	K	81ST STREET PEDESTRIAN BRIDGE	BSHP		A-PED	P	5	C	3/25/2014	4.761	F	3,100	\$13,717,500	310		
2231260	K	92ND STREET PEDESTRIAN BRIDGE	BSHP		A-PED	P	6	C	8/6/2014	3.541	F	3,000	\$13,275,000	310		
2231270	K	4TH AVENUE	BSHP		A		2	S	3/21/2014	4.763	F	6,100	\$26,992,500	310		
2231290	K	BAY 8TH STREET	BSHP		A		1	S	6/11/2013	5.921	G	4,950	\$21,903,750	311		
2231300	K	17TH AVENUE PEDESTRIAN BRIDGE	BSHP		A-PED	P	1	C	8/14/2014	3.667	F	2,100	\$9,292,500	311		
2231319	K	BSHP	BAY PARKWAY		A		1	S	6/19/2014	4.533	F	7,200	\$31,860,000	311		
2231329	K	BSHP	26TH AVENUE		A		1	S	4/1/2014	4.600	F	6,700	\$29,647,500	313		
2231330	K	27TH AVENUE PEDESTRIAN BRIDGE	BSHP		A-PED	P	1	C	1/27/2014	4.021	F	2,100	\$9,292,500	313		
2231340	K	CROPSY AVENUE	BSHP		A		2	S	7/10/2014	4.639	F	13,100	\$57,967,500	313		
2231360	K	BSHP	OCEAN PARKWAY		A		3	S	7/16/2014	6.448	VG	29,637	\$131,143,725	313		
2231370	K	GUIDER AVENUE RAMP TO BSHP	BSHP		A		4	S	9/23/2014	6.778	VG	10,548	\$46,674,900	313		
2231380	K	CONEY ISLAND AVENUE	BSHP		A		4	S	10/15/2013	5.708	G	19,866	\$87,907,050	313		
2231390	K	EAST 12TH STREET	BSHP		A		4	S	7/7/2014	4.542	F	17,200	\$76,110,000	315		
2231409	K	BSHP	SHEEPSHEAD BAY ROAD		A		1	S	4/1/2014	4.738	F	6,500	\$28,762,500	315		



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2231419	K	BSHP	OCEAN AVENUE		A		3	S	3/25/2014	4.306	F	14,000	\$61,950,000	315		
2231429	K	BSHP	BEDFORD AVENUE		A		3	S	4/23/2014	4.278	F	12,000	\$53,100,000	315		
2231439	K	BSHP	NOSTRAND AVENUE		A		3	S	3/25/2014	4.264	F	13,000	\$57,525,000	315		
2231449	K	KNAPP STREET	BSHP		A		1	S	4/9/2014	4.313	F	9,500	\$42,037,500	315		
2231450	K	BSHP	GERRITSEN INLET		WA		11	S	8/12/2014	3.418	F	52,000	\$230,100,000	356		
2231460	K	FLATBUSH AVENUE	BSHP		A		2	S	10/18/2013	6.206	VG	14,058	\$62,206,650	356		
2231479	K	BSHP	MILL BASIN		WMA		14	S	11/4/2014	3.269	F	73,500	\$325,237,500	318		
2231481	K	BSHP WESTBOUND	PAERDEGAT BASIN		WA		3	S	11/5/2013	6.939	VG	50,052	\$221,480,100	318		
2231482	K	BSHP EASTBOUND	PAERDEGAT BASIN		WA		5	S	11/4/2014	7.000	VG	82,074	\$363,177,450	318		
2231499	K	BSHP	ROCKAWAY PARKWAY		A		1	S	11/5/2014	7.000	VG	10,370	\$45,887,250	356		
2231509	K	BSHP	FRESH CREEK		WA		3	S	11/25/2013	6.831	VG	40,095	\$177,420,375	356		
2231519	K	PENNSYLVANIA AVENUE	BSHP		A		2	S	6/18/2013	5.694	G	6,640	\$29,382,000	356		
2231559	Q	CROSS BAY BOULEVARD	BSHP		A		4	S	5/30/2014	5.083	G	23,205	\$102,682,125	410		
2231560	Q	SOUTH CONDUIT BOULEVARD	BSOP		A		2	S	6/16/2014	5.268	G	15,776	\$69,808,800	410		
2231570	Q	COHANCY STREET	BSOP		A		2	S	4/17/2014	4.395	F	6,400	\$28,320,000	410		
2231590	Q	130TH STREET	BSOP		A		2	S	1/30/2014	4.659	F	6,800	\$30,090,000	410		
2231610	Q	GUY R. BREWER BOULEVARD	BSOP		A		4	S	5/20/2013	6.222	VG	12,342	\$54,613,350	413		
2231620	Q	FARMERS BOULEVARD	BSOP		A		2	S	4/25/2014	4.477	F	6,400	\$28,320,000	413		
2231630	Q	SPRINGFIELD BOULEVARD	BSOP		A		2	S	4/25/2014	4.591	F	8,500	\$37,612,500	413		
2231640	Q	225TH STREET	BSOP		A		2	S	5/15/2014	4.614	F	7,000	\$30,975,000	413		
2231650	Q	SUNRISE HWY WESTBOUND	BLP EASTBOUND		A		1	S	3/21/2014	4.262	F	4,100	\$18,142,500	413		
2231660	Q	SUNRISE HWY WESTBOUND	BLP WESTBOUND		A		2	S	2/25/2014	4.565	F	5,350	\$23,673,750	413		
2231670	Q	NORTH CONDUIT AVENUE WESTBOUND	BLP EASTBOUND		A		1	S	1/13/2014	4.917	F	4,000	\$17,700,000	413		
2231680	Q	NORTH CONDUIT AVENUE WESTBOUND	BLP WESTBOUND		A		2	S	1/20/2014	4.932	F	6,500	\$28,762,500	413		
2231690	Q	FRANCIS LEWIS BOULEVARD	BLP EASTBOUND		A		1	S	3/17/2014	5.033	G	6,000	\$26,550,000	413		
2231700	Q	FRANCIS LEWIS BOULEVARD	BLP WESTBOUND		A		1	S	3/18/2014	4.700	F	6,000	\$26,550,000	413		
2231710	Q	MERRICK BOULEVARD	BLP NORTHBOUND		A		1	S	2/11/2014	4.467	F	6,000	\$26,550,000	413		
2231720	Q	MERRICK BOULEVARD	BLP SOUTHBOUND		A		1	S	2/12/2014	4.200	F	6,000	\$26,550,000	413		
2231730	Q	130TH AVENUE	BLP NORTHBOUND		A		1	S	1/10/2014	5.133	G	4,400	\$19,470,000	413		
2231740	Q	130TH AVENUE	BLP SOUTHBOUND		A		1	S	1/13/2014	4.700	F	4,400	\$19,470,000	413		
2231750	Q	LINDEN BOULEVARD	BCIP		A		2	S	2/25/2014	4.432	F	6,700	\$29,647,500	413		
2231760	Q	BCIP	DUTCH BROADWAY-115TH AVENUE		A		1	S	2/28/2014	4.233	F	7,300	\$32,302,500	413		
2231770	Q	BELMONT PARK SOUTH RAMP	BCIP		A	P	1	S	2/26/2014	4.781	F	3,200	\$14,160,000	413		
2231780	Q	HEMPSTEAD AVENUE	BCIP		A		2	S	2/6/2014	4.000	F	14,200	\$62,835,000	413		
2231790	Q	BELMONT PARK NORTH RAMP	BCIP		A	P	1	S	1/12/2014	4.563	F	3,400	\$15,045,000	413		
2231800	Q	SUPERIOR ROAD	BCIP		A		2	S	4/1/2014	4.682	F	7,000	\$30,975,000	413		
2231819	Q	JAMAICA AVENUE	BCIP		A		2	S	3/19/2014	4.773	F	11,500	\$50,887,500	413		

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2231829	O	BRADDOCK AVENUE	BCIP		A		2	S	3/19/2014	4.886	F	10,600	\$46,905,000	413		
2231840	O	HILLSIDE AVENUE	BCIP		A		2	S	3/18/2014	4.211	F	9,672	\$42,798,600	413		
2231850	O	UNION TURNPIKE	BCIP		A		2	S	3/19/2014	4.409	F	13,600	\$60,180,000	413		
2231860	O	WEST ALLEY ROAD	BCIP		A		2	S	7/17/2013	5.368	G	7,200	\$31,860,000	411		
2231870	O	NORTHERN BOULEVARD	BCIP		A		2	S	7/14/2014	5.764	G	9,400	\$41,595,000	411		
2231880	O	CROCHERON PARK PEDESTRIAN	BCIP		A-PED	P	9	C	5/13/2014	3.954	F	2,300	\$10,177,500	411		
2231890	O	28TH AVENUE PEDESTRIAN BRIDGE	BCIP		A-PED	P	24	C	6/4/2014	4.615	F	7,600	\$33,630,000	411		
2231900	O	BCIP	TOTTEN AVENUE		A		1	S	5/12/2014	4.609	F	4,900	\$21,682,500	407		
2231910	O	UTOPIA PARKWAY	BCIP		A		2	S	3/7/2014	5.341	G	7,200	\$31,860,000	407		
2231920	O	160TH STREET	BCIP		A		2	S	6/17/2013	5.694	G	5,550	\$24,558,750	407		
2231930	O	FRANCIS LEWIS BOULEVARD	BCIP		A		3	S	2/21/2014	4.682	F	9,100	\$40,267,500	407		
2231940	O	CLINTONVILLE STREET	BCIP		A		2	S	2/21/2014	4.705	F	7,400	\$32,745,000	407		
2231950	O	150TH STREET	BCIP		A		2	S	2/21/2014	4.591	F	5,900	\$26,107,500	407		
2231960	O	149TH STREET	BCIP		A		2	S	1/29/2014	4.795	F	6,210	\$27,479,250	407		
2231970	O	14TH AVENUE	BCIP		A		2	S	1/29/2014	4.523	F	8,100	\$35,842,500	407		
2231980	O	147TH STREET	BCIP		A		2	S	1/29/2014	4.705	F	6,300	\$27,877,500	407		
2232000	M	BATTERY PLACE	FDR DRIVE		AT		2	S	10/16/2013	5.182	G	142,000	\$628,350,000	101		
223201A	M	FDR DRIVE NORTHBOUND OFF RMP	FDR DRIVE & SOUTH STREET		AR		17	S	7/23/2014	4.493	F	23,373	\$103,425,525	101		
223201B	M	SOUTH STREET RAMP TO FDR DRIVE SOUTHBOUND	SOUTH STREET		AR		10	S	2/24/2014	3.791	F	13,388	\$59,241,900	101		
223201C	M	FDR DR SOUTHBOUND OFF RAMP	SOUTH STREET		AR		8	S	2/6/2014	5.209	G	36,700	\$162,397,500	103		
223201D	M	RAMP TO NORTHBOUND FDR DRIVE	FDR DRIVE & SOUTH STREET		AR		22	S	2/25/2014	4.967	F	15,825	\$70,025,625	101	103	
2232029	M	CORLEARS PARK ROAD	FDR DRIVE		A	P	4	S	3/20/2014	3.813	F	4,100	\$18,142,500	103		
2232030	M	DELANCEY STREET PEDESTRIAN BRIDGE	FDR DRIVE		A-PED	P	12	C	3/9/2014	4.443	F	3,390	\$15,000,750	103		
2232040	M	HOUSTON STREET	FDR DRIVE		A		2	S	5/6/2014	3.750	F	11,010	\$48,719,250	103		
223204A	M	FDR NORTHBOUND RAMP TO HOUSTON STREET	RELIEF		AR		4	S	1/17/2014	4.706	F	6,150	\$27,213,750	103		
223204B	M	HOUSTON STREET RAMP TO FDR DRIVE NORTHBOUND	RELIEF		AR		4	S	1/17/2014	4.792	F	7,125	\$31,528,125	103		
2232050	M	EAST 6TH STREET PEDESTRIAN BRIDGE	FDR DRIVE		A-PED	P	19	C	3/13/2014	4.167	F	2,200	\$9,735,000	103		
2232070	M	EAST 25TH STREET PEDESTRIAN BRIDGE	FDR DRIVE		A-PED		3	C	3/23/2014	4.600	F	1,700	\$7,522,500	106		
2232100	M	EAST 51ST STREET PEDESTRIAN BRIDGE	FDR DRIVE		A-PED	P	6	C	4/22/2014	4.283	F	2,800	\$12,390,000	106		
2232110	M	EAST 63RD STREET PEDESTRIAN BRIDGE	FDR DRIVE		A-PED	P	11	U	11/23/2011	4.912	F	2,100	\$9,292,500	108		
2232120	M	EAST 71ST STREET PEDESTRIAN BRIDGE	FDR DRIVE		A-PED	P	19	C	8/17/2014	4.761	F	3,700	\$16,372,500	108		
2232140	M	EAST 78TH STREET PEDESTRIAN BRIDGE	FDR DRIVE		A-PED	P	13	C	5/8/2014	6.708	VG	5,226	\$23,125,050	108		
2232167	M	PROMENADE OVER FDR DRIVE	FDR DRIVE - EAST 81ST STREET - EAST 90TH STREET		A-PED	P	53	S	7/2/2013	3.143	F	93,000	\$411,525,000	108		
2232180	M	EAST 103RD STREET PEDESTRIAN BRIDGE	FDR DRIVE		A-PED		18	C	8/17/2014	4.390	F	6,807	\$30,120,975	111		
2232190	M	EAST 111TH STREET PEDESTRIAN BRIDGE	FDR DRIVE		A-PED	P	9	C	8/25/2014	4.319	F	4,254	\$18,823,950	111		
2232200	M	EAST 120TH STREET PEDESTRIAN BRIDGE	FDR DRIVE		A-PED	P	18	C	8/24/2014	4.114	F	3,978	\$17,602,650	111		
2233020	M	EAST 10TH STREET PEDESTRIAN BRIDGE	FDR DRIVE		A-PED	P	21	C	4/14/2014	4.673	F	2,754	\$12,186,450	103		

**INVENTORY SORTED BY B.I.N.**

BIN	BORO	FEATURE CARRIED	FEATURE CROSSED	RAIL RO	BRIDGE TYPE	OTHER OWNER	SPANS	RT NG SR	Inspection Date	Condition Rating	VR BL RT	DECK AREA	REPLACEMENT COST	CD	CD2	CD3
2233038	M	FDR DRIVE SOUTHBOUND	FDR DRIVE NORTHBOUND / EAST 62ND STREET		AT		34	S	11/25/2014	6.563	VG	58,700	\$259,747,500	106	108	
2233040	M	EAST 60TH STREET	FDR DRIVE		A	P	17	S	7/2/2014	5.000	G	24,480	\$108,324,000	108		
2233059	M	HARLEM RIVER DRIVE	EAST 127TH STREET RAMP TO/FROM HRD NORTHBOUND		A		11	S	6/24/2014	3.552	F	51,000	\$225,675,000	111		
2233080	K	EAST 14TH STREET PEDESTRIAN BRIDGE	BSHP		A-PED		14	C	8/5/2014	4.164	F	4,700	\$20,797,500	315		
2240019	KM	BROOKLYN BRIDGE	EAST RIVER		WEO		75	S	12/5/2014	3.139	F	503,788	\$2,229,261,900	103	302	101
224001A	M	PARK ROW TO BROOKLYN	WILLIAM STREET NORTHBOUND		OE		4	S	4/23/2014	4.229	F	10,167	\$44,988,975	101		
224001B	M	TO BROOKLYN FROM FDR DRIVE	FRANKFORT & PEARL STREETS		OE		31	S	8/1/2014	4.926	F	51,400	\$227,445,000	101	103	
224001C	M	PEARL STREET TO BROOKLYN	LAND ADJACENT TO BRIDGE		OE		9	S	3/28/2014	3.678	F	6,365	\$28,165,125	101		
224001D	M	TO FDR DIVE NORTHBOUND	PEARL STREET		OE		30	S	9/18/2014	4.679	F	49,600	\$219,480,000	101	103	
224001E	M	TO PEARL STREET	LAND ADJACENT TO BRIDGE		OE		3	S	6/2/2014	5.197	G	5,300	\$23,452,500	101		
224001F	M	PEARL STREET TO FDR DRIVE	LAND ADJACENT TO BRIDGE		OE		3	S	7/9/2014	5.141	G	5,200	\$23,010,000	103		
224001G	M	TO PARK ROW	ROSE STREET		OE		11	S	4/9/2014	4.549	F	16,551	\$73,238,175	101		
2240027	KM	MANHATTAN BRIDGE (LOWER LEVEL)	EAST RIVER	T	WEO		23	S	10/22/2014	3.889	F	616,390	\$2,727,525,750	103	302	
2240028	KM	MANHATTAN BRIDGE (UPPER LEVEL)	NYCTA TRACKS-BMT	T	WEO		43	S	10/21/2014	3.757	F	587,424	\$2,599,351,200	103	302	
2240039	KM	WILLIAMSBURG BRIDGE	EAST RIVER	T	WEO		53	S	10/20/2014	4.542	F	824,000	\$3,646,200,000	103	301	
2240047	MO	QUEENSBORO BRIDGE (LOWER LEVEL)	EAST RIVER	AL	WEO		53	S	11/12/2014	4.167	F	626,900	\$2,774,032,500	108	402	401
2240048	MO	QUEENSBORO BRIDGE (UPPER LEVEL)	EAST RIVER - LL		WEO		37	S	10/13/2014	4.340	F	322,300	\$1,426,177,500	108	402	401
224004A	M	TO EAST 60TH STREET FROM QUEENS	FIRST AVENUE		OE		13	S	4/21/2014	5.338	G	14,800	\$65,490,000	108		
224004B	M	TO QUEENS FROM EAST 59TH STREET	FIRST AVENUE		OE		13	S	4/22/2014	5.542	G	14,800	\$65,490,000	108		
224004C	M	TO EAST 62ND STREET FROM QUEENS	EAST 60TH - EAST 61ST STREET		OE		10	S	7/17/2014	4.985	F	16,720	\$73,986,000	108		
224004D	M	TO QUEENS FROM EAST 58TH STREET	EAST 59TH STREET		OE		12	S	6/13/2014	4.396	F	10,858	\$48,046,650	106	108	
224004E	Q	TO NY FROM THOMSON AVENUE	JACKSON AVENUE	L	OE		94	S	11/26/2014	4.679	F	104,600	\$462,855,000	402		
224004F	Q	TO NY FROM 21ST STREET	21ST STREET		OE		63	S	11/7/2014	4.712	F	63,310	\$280,146,750	402	401	
224004G	Q	TO NY FROM 11TH STREET	TERRAIN (CHAMBER)		OE		36	S	7/25/2014	5.268	G	8,360	\$36,993,000	401	402	
224004H	Q	TO 21ST STREET FROM NY	22ND STREET		OE		43	S	10/13/2014	4.366	F	48,100	\$212,842,500	402		
224004I	Q	TO THOMSON AVENUE FROM NY	JACKSON AVENUE	L	OE		39	S	11/21/2014	5.148	G	59,100	\$261,517,500	402		
224004J	M	25X TO/FROM 2ND AVENUE	NYC GARAGE		OE		14	S	4/21/2014	4.829	F	22,058	\$97,606,650	108		
2240059	BM	WILLIS AVENUE	HARLEM RIVER		WMO		15	S	11/12/2014	6.778	VG	171,105	\$757,139,625	111	201	
224005A	M	RAMP FROM FDR DRIVE	HARLEM RIVER DR NORTHBOUND		OR		11	S	11/7/2014	6.887	VG	28,233	\$124,931,025	111		
224005B	B	TO BRUCKNER BOULEVARD	RELIEF		OR		4	S	10/3/2013	6.831	VG	19,990	\$88,455,750	201		
2240069	BM	THIRD AVENUE BRIDGE	HARLEM RIVER		WMO		14	S	9/4/2014	5.789	G	100,232	\$443,526,600	111	201	
224006A	B	FROM BRUCKNER BOULEVARD	RELIEF		OR		5	S	9/14/2013	6.535	VG	14,037	\$62,113,725	201		
2240079	BM	MADISON AVENUE BRIDGE	HARLEM RIVER		WMO		21	S	9/17/2014	4.861	F	80,000	\$354,000,000	111	201	
224007A	M	RAMP TO MADISON AVENUE	EAST 138TH STREET		OR		7	S	2/6/2014	5.028	G	19,880	\$87,969,000	111		
2240089	BM	145TH STREET BRIDGE	HARLEM RIVER		WMO		8	S	8/15/2013	6.278	VG	56,700	\$250,897,500	110	204	201
2240120	BM	WEST 207TH STREET/WEST FORDHAM ROAD	HARLEM RIVER		WMO		5	S	7/31/2014	5.000	G	31,784	\$140,644,200	112	207	
2240137	BM	BROADWAY BRIDGE	HARLEM RIVER	TM	WMO		3	S	12/17/2014	3.806	F	46,848	\$207,302,400	112	207	208

**INVENTORY SORTED BY B.I.N.**

BIN	BORO	FEATURE CARRIED	FEATURE CROSSED	RAIL L RO	BRIDGE TYPE	OTHER OWNER	SPA NS	RT NG SR	Inspection Date	Condition Rating	VR BL RT	DECK AREA	REPLACEMENT COST	CD	CD2	CD3
2240138	BM	NYCTA IRT	HARLEM RIVER/BROADWAY	TM	WMO		3	S	10/9/2013	4.720	F	19,520	\$86,376,000	112	207	208
2240180	B	WESTCHESTER AVENUE	BRONX RIVER		WO		1	S	8/22/2013	4.667	F	5,476	\$24,231,300	202	209	
2240200	B	SHORE ROAD	HUTCHINSON RIVER		WMO		7	S	5/30/2014	4.537	F	43,576	\$192,823,800	228		
2240210	B	CITY ISLAND ROAD	EASTCHESTER BAY		WO		7	S	10/16/2014	3.389	F	19,915	\$88,123,875	228		
2240231	K	HAMILTON AVENUE BRIDGE	GOWANUS CANAL		WMO		3	S	9/9/2014	5.472	G	7,300	\$32,302,500	307	306	
2240232	K	HAMILTON AVENUE BRIDGE	GOWANUS CANAL		WMO		3	S	8/13/2013	5.361	G	8,611	\$38,103,675	306		
2240240	K	NINTH STREET BRIDGE	GOWANUS CANAL		WMO		3	S	6/25/2013	6.065	VG	5,772	\$25,541,100	306		
2240250	K	THIRD STREET	GOWANUS CANAL		WMO		5	S	5/31/2013	4.722	F	4,900	\$21,682,500	306		
2240260	K	CARROLL STREET	GOWANUS CANAL		WMO		2	S	10/13/2014	5.208	G	3,000	\$13,275,000	306		
2240270	K	UNION STREET	GOWANUS CANAL		WMO		5	S	8/15/2014	4.111	F	4,900	\$21,682,500	306		
2240290	K	METROPOLITAN AVENUE	ENGLISH KILLS		WMO		5	S	7/9/2013	5.444	G	10,550	\$46,683,750	301		
2240301	K	CROPSY AVENUE SOUTHBOUND	CONEY ISLAND CREEK		WO		3	S	7/2/2013	5.000	G	9,400	\$41,595,000	313		
2240302	K	CROPSY AVENUE NORTHBOUND	CONEY ISLAND CREEK		WO		3	S	10/27/2014	4.718	F	9,400	\$41,595,000	313		
2240310	K	THIRD AVENUE	GOWANUS CANAL		WO		1	S	6/6/2013	6.633	VG	3,200	\$14,160,000	306		
2240320	K	OCEAN AVENUE PEDESTRIAN BRIDGE	SHEEPSHEAD BAY		WO-PED		30	C	5/8/2014	4.532	F	4,450	\$19,691,250	315		
2240350	R	RICHMOND AVENUE	RICHMOND CREEK		WO		3	S	7/1/2013	5.472	G	32,589	\$144,206,325	502		
2240370	KO	GREENPOINT AVENUE BRIDGE	NEWTOWN CREEK	L	WMO		12	S	8/5/2013	5.083	G	76,106	\$336,769,050	301	402	
2240390	KO	GRAND STREET BRIDGE	NEWTOWN CREEK		WMO		2	S	10/28/2014	4.069	F	5,100	\$22,567,500	301	405	
2240410	O	BORDEN AVENUE	DUTCH KILLS		WMO		2	S	7/5/2013	4.792	F	8,400	\$37,170,000	402		
2240440	O	NORTHERN BOULEVARD	ALLEY CREEK		WO		2	S	6/17/2014	4.681	F	8,300	\$36,727,500	411		
2240450	O	HUNTERS POINT AVENUE	DUTCH KILLS		WMO		4	S	5/30/2014	5.056	G	12,168	\$53,843,400	402		
2240507	O	ROOSEVELT AVENUE	678I - FLUSHING RIVER		WA		27	S	11/7/2014	3.521	F	84,424	\$373,576,200	407	481	
2240540	K	STILLWELL AVENUE	CONEY ISLAND CREEK		WO		2	S	6/12/2013	6.292	VG	17,000	\$75,225,000	313		
2240620	M	WARDS ISLAND PEDESTRIAN BRIDGE	HARLEM RIVER		WMO-PED		10	C	4/2/2014	4.667	F	19,500	\$86,287,500	111		
2240639	KO	PULASKI BRIDGE	NEWTOWN CREEK		WMO		44	S	6/5/2014	4.437	F	205,770	\$910,532,250	301	402	
2240640	MO	ROOSEVELT ISLAND BRIDGE	EAST RIVER EAST CHANNEL		WMO		8	S	10/29/2014	5.569	G	36,500	\$161,512,500	108	401	
2240650	O	163RD AVENUE PEDESTRIAN BRIDGE	HAWTREE BASIN		WO-PED		13	C	5/12/2014	4.037	F	5,000	\$22,125,000	410		
2240660	O	RIKERS ISLAND BRIDGE	RIKERS ISLAND CHANNEL		WO		56	S	9/26/2013	4.211	F	183,100	\$810,217,500	401	480	
2241000	B	WESTCHESTER AVENUE	CSX PT MORRIS - (ABANDONED)	C	O		1	S	8/29/2014	4.660	F	1,740	\$7,699,500	201		
2241010	B	EAST 156TH STREET	CSX PT MORRIS - (ABANDONED)	C	O		1	S	5/9/2014	4.612	F	2,400	\$10,620,000	201		
2241020	B	EAST 161ST STREET	CSX PT MORRIS - (ABANDONED)	C	O		1	S	3/20/2014	5.800	G	12,800	\$56,640,000	203		
2241030	B	EAST 163RD STREET	CSX PT MORRIS - (ABANDONED)	C	O		1	S	2/27/2014	4.611	F	3,200	\$14,160,000	203		
2241040	B	THIRD AVENUE	CSX PT MORRIS - (ABANDONED)	C	O		1	S	7/3/2014	4.563	F	2,700	\$11,947,500	201	203	
2241050	B	EAST 149TH STREET / JACKSON AVENUE	CSX PT MORRIS - (ABANDONED)	C	O		1	S	5/12/2014	4.817	F	65,000	\$287,625,000	201		
2241060	B	ST. MARYS & CONCORD	CSX PT MORRIS - (ABANDONED)	C	O		1	S	7/2/2014	5.370	G	4,500	\$19,912,500	201		
2241070	B	WALES AVENUE	CSX PT MORRIS - (ABANDONED)	C	O		1	S	7/2/2014	6.467	VG	2,535	\$11,217,375	201		
2241080	B	SOUTHERN BOULEVARD	CSX PT MORRIS - (ABANDONED)	C	O		1	S	7/1/2014	4.093	F	3,900	\$17,257,500	201		

**INVENTORY SORTED BY B.I.N.**

BIN	BORO	FEATURE CARRIED	FEATURE CROSSED	RAIL RO	BRIDGE TYPE	OTHER OWNER	SPA NS	RT NG SR	Inspection Date	Condition Rating	VR BL RT	DECK AREA	REPLACEMENT COST	CD	CD2	CD3
2241099	B	BRÜCKNER BOULEVARD	CSX TRANS - PT MORRIS	C	O		1	S	7/16/2014	6.067	VG	6,700	\$29,647,500	201		
2241110	B	MELROSE AVENUE	CSX PT MORRIS - (ABANDONED)	C	O		8	S	8/20/2013	5.667	G	37,854	\$167,503,950	203		
2241129	B	EAST 149TH STREET	AMTRAK - CSX	AC	O		2	S	11/17/2014	4.592	F	18,258	\$80,791,650	201	202	
2241139	B	LEGGETT AVENUE	AMTRAK - CSX	AC	O		3	S	11/17/2014	4.620	F	41,551	\$183,863,175	202		
2241159	B	LONGWOOD AVENUE	AMTRAK - CSX	AC	O		2	S	11/18/2014	5.236	G	10,625	\$47,015,625	202		
2241169	B	LAFAYETTE AVENUE	AMTRAK - CSX	AC	O		1	S	11/18/2014	5.365	G	12,000	\$53,100,000	202		
2241170	B	TIFFANY STREET	AMTRAK - CSX	AC	O		1	S	11/18/2013	5.745	G	7,267	\$32,156,475	202		
2241180	B	BARRETTO STREET	AMTRAK - CSX	AC	O		1	S	11/18/2014	5.813	G	5,313	\$23,510,025	202		
2241190	B	HUNTS POINT AVENUE	AMTRAK - CSX	AC	O		1	S	11/20/2014	4.813	F	10,049	\$44,466,825	202		
2241200	B	FAILE STREET	AMTRAK - CSX	AC	O		1	S	11/19/2014	5.578	G	6,208	\$27,470,400	202		
2241210	B	BRYANT AVENUE	AMTRAK - CSX	AC	O		1	S	11/19/2014	3.186	F	5,300	\$23,452,500	202		
2241230	B	WESTCHESTER AVENUE	AMTRAK - CSX	AC	O		3	S	11/1/2014	5.778	G	15,600	\$69,030,000	202	209	
2241259	B	204TH STREET PEDESTRIAN BRIDGE	METRO NORTH RR HAR	M	O-PED	P	1	C	10/20/2014	3.845	F	4,700	\$20,797,500	227	207	
2241269	B	EAST 177TH STREET	AMTRAK - CSX	AC	O		3	S	7/29/2014	5.278	G	16,606	\$73,481,550	206		
2241270	B	EAST TREMONT AVENUE	AMTRAK - CSX	AC	O		2	S	10/31/2014	5.153	G	22,300	\$98,677,500	209	211	
2241329	B	WHITE PLAINS ROAD	AMTRAK - CSX	AC	O		1	S	10/28/2014	4.781	F	6,900	\$30,532,500	211		
2241330	B	UNIONPORT ROAD	AMTRAK - CSX	AC	O		1	S	10/28/2014	4.688	F	7,631	\$33,767,175	211		
2241369	B	WILLIAMSBRIDGE ROAD	AMTRAK - CSX	AC	O		2	S	10/29/2014	4.985	F	6,510	\$28,806,750	211		
2241380	B	PELHAM BAY PARK EQUESTRIAN	AMTRAK - CSX	AC	O-PED	P	1	C	7/24/2013	3.339	F	7,300	\$32,302,500	228		
2241390	B	SHORE ROAD CIRCLE	AMTRAK - CSX	AC	O		1	S	7/21/2014	7.000	VG	8,067	\$35,696,475	228		
2241409	B	GRAND CONCOURSE	METRO NORTH RR HUD	MT	O		1	S	6/27/2014	3.766	F	14,300	\$63,277,500	204		
2241410	B	WALTON AVENUE	METRO NORTH RR HUD	M	O		1	S	5/5/2014	4.406	F	3,600	\$15,930,000	204		
2241420	B	GERARD AVENUE	METRO NORTH RR HUD	M	O		1	S	5/5/2014	5.422	G	5,063	\$22,403,775	204		
2241430	B	RIVER AVENUE	METRO NORTH RR HUD	M	O		1	S	8/30/2013	6.156	VG	5,040	\$22,302,000	204		
2241460	B	WEST TREMONT AVENUE	METRO NORTH RR HUD	M	O		8	S	6/12/2014	3.776	F	12,900	\$57,082,500	205		
2241470	B	WEST FORDHAM ROAD	METRO NORTH RR HUD	M	O		4	S	9/9/2013	5.694	G	16,052	\$71,030,100	207		
2241489	B	WEST 225TH STREET	CSX TRASP - PUTNAM	C	O		2	S	8/28/2014	5.269	G	10,900	\$48,232,500	207	208	
2241490	B	WEST 230TH STREET	CSX PUTNAM (ABANDONED)		O		1	S	5/8/2013	5.625	G	5,600	\$24,780,000	208		
2241509	B	WEST 231ST STREET	CSX PUTNAM (ABANDONED)		O		1	S	7/3/2014	4.745	F	4,723	\$20,899,275	208		
2241510	B	WEST 233RD STREET	CSX PUTNAM (ABANDONED)		O		1	S	5/8/2013	5.275	G	3,760	\$16,638,000	208		
2241520	B	WEST 234TH STREET	CSX PUTNAM (ABANDONED)		O		1	S	5/8/2013	5.176	G	3,770	\$16,682,250	208		
2241550	B	EAST 144TH STREET	METRO NORTH RR HAR	M	O		2	S	8/30/2013	6.181	VG	8,290	\$36,683,250	201		
2241560	B	EAST 149TH STREET	METRO NORTH RR HAR	M	O		8	S	5/5/2014	4.625	F	27,900	\$123,457,500	201	204	
2241590	B	CONCOURSE VILLAGE AVENUE	METRO NORTH RR HAR	M	O		1	S	4/19/2014	3.969	F	12,077	\$53,440,725	204		
2241600	B	EAST 158TH STREET	METRO NORTH RR HAR	M	O		1	S	8/31/2013	5.200	G	3,400	\$15,045,000	204		
2241610	B	EAST 161ST STREET	METRO NORTH RR HAR	M	O		1	S	9/24/2013	5.050	G	6,600	\$29,205,000	204	203	
2241620	B	EAST 162ND STREET	METRO NORTH RR HAR	M	O		1	S	4/26/2014	4.781	F	4,700	\$20,797,500	203		

**INVENTORY SORTED BY B.I.N.**

BIN	BORO	FEATURE CARRIED	FEATURE CROSSED	RAIL L RO	BRIDGE TYPE	OTHER OWNER	SPA NS	RT NG SR	Inspection Date	Condition Rating	VR BL RT	DECK AREA	REPLACEMENT COST	CD	CD2	CD3
2241630	B	EAST 165TH STREET	METRO NORTH RR HAR	M	O		1	S	4/26/2014	4.300	F	16,400	\$72,570,000	203		
2241650	B	EAST 167TH STREET	METRO NORTH RR HAR	M	O		1	S	4/21/2014	5.510	G	3,363	\$14,881,275	203		
2241660	B	EAST 168TH STREET	METRO NORTH RR HAR	M	O		1	S	4/22/2014	4.641	F	4,800	\$21,240,000	203		
2241670	B	EAST 169TH STREET	METRO NORTH RR HAR	M	O		1	S	4/22/2014	4.188	F	3,300	\$14,602,500	203		
2241680	B	EAST 170TH STREET	METRO NORTH RR HAR	M	O		1	S	4/22/2014	6.333	VG	3,150	\$13,938,750	203		
2241700	B	ST PAULS PLACE PEDESTRIAN BRIDGE	METRO NORTH RR HAR	M	O-PED		2	C	10/24/2014	4.887	F	888	\$3,929,400	203		
2241710	B	CLAREMONT PARKWAY	METRO NORTH RR HAR	M	O		1	S	4/17/2014	6.458	VG	5,950	\$26,328,750	203		
2241720	B	EAST 173RD STREET	METRO NORTH RR HAR	M	O		1	S	4/17/2014	4.875	F	3,000	\$13,275,000	203		
2241740	B	EAST 175TH STREET	METRO NORTH RR HAR	M	O		1	S	4/14/2014	3.875	F	3,600	\$15,930,000	206		
2241760	B	EAST TREMONT AVENUE	METRO NORTH RR HAR	M	O		1	S	8/29/2013	6.450	VG	8,424	\$37,276,200	206		
2241770	B	EAST 178TH STREET PEDESTRIAN BRIDGE	METRO NORTH RR HAR	M	O-PED		1	C	10/23/2014	4.921	F	731	\$3,234,675	206		
2241780	B	EAST 179TH STREET PEDESTRIAN BRIDGE	METRO NORTH RR HAR	M	O-PED		6	C	10/22/2014	5.311	G	1,011	\$4,473,675	206		
2241790	B	EAST 180TH STREET	METRO NORTH RR HAR	M	O		1	S	4/24/2014	3.844	F	5,000	\$22,125,000	206		
2241800	B	EAST 183TH STREET	METRO NORTH RR HAR	M	O		1	S	4/24/2014	3.953	F	4,080	\$18,054,000	206		
2241810	B	EAST 188TH STREET	METRO NORTH RR HAR	M	O		1	S	4/16/2014	4.094	F	5,300	\$23,452,500	206		
2241820	B	EAST 187TH STREET	METRO NORTH RR HAR	M	O		1	S	4/23/2014	4.344	F	3,800	\$16,815,000	206		
2241839	B	EAST 189TH STREET	METRO NORTH RR HAR	M	O		1	S	8/28/2013	6.133	VG	43,157	\$190,969,725	206	207	
2241840	B	BEDFORD PARK BOULEVARD	METRO NORTH RR HAR	M	O		1	S	4/28/2014	4.656	F	6,400	\$28,320,000	227	207	
2241860	B	GUN HILL ROD	METRO NORTH RR HAR	M	O		1	S	4/29/2014	6.531	VG	9,128	\$40,391,400	212		
2241870	B	EAST 233RD STREET	METRO NORTH RR HAR	M	O		1	S	4/28/2014	4.902	F	7,664	\$33,913,200	212	207	
2241890	B	EAST 241ST STREET	BRP, METRO NORTH HAR	M	WO		28	S	11/30/2013	4.417	F	49,500	\$219,037,500	212		
2241900	B	EASTCHESTER ROAD	NYCTA-DYRE AVENUE LINE	T	O		3	S	10/28/2014	4.472	F	13,500	\$59,737,500	212		
2241910	B	GUN HILL ROAD	NYCTA-DYRE AVENUE LINE	T	O		1	S	10/28/2014	5.516	G	7,500	\$33,187,500	211	212	
2241930	B	BEDFORD PARK BOULEVARD	NYCTA IND YARDS	T	O		4	S	10/31/2014	5.347	G	46,300	\$204,877,500	207		
2241940	B	WEST 205TH STREET	NYCTA IND YARDS	T	O		4	S	10/31/2014	5.514	G	32,508	\$143,847,900	207		
2241959	B	HUTCHINSON RIVER PARKWAY	AMTRAK - CSX	AC	O		1	S	10/9/2014	5.542	G	15,444	\$68,339,700	210	211	
2242010	B	EAST FORDHAM ROAD	BRONX RIVER		WO		1	S	3/26/2014	5.467	G	9,200	\$40,710,000	227		
2242029	B	SOUTHERN BOULEVARD	EAST FORDHAM ROAD		O		2	S	1/29/2014	4.605	F	12,900	\$57,082,500	227		
2242030	B	CROTONA AVENUE	BRONX PELHAM PARKWAY		O		2	S	1/29/2014	5.447	G	7,600	\$33,630,000	206		
2242071	B	BRONX BOULEVARD SOUTHBOUND	BRONX RIVER		WO		1	S	3/27/2014	4.367	F	1,800	\$7,965,000	212		
2242072	B	BRONX BOULEVARD NORTHBOUND	BRONX RIVER		WO		1	S	3/27/2014	4.867	F	1,800	\$7,965,000	212		
2242081	B	BRONX BOULEVARD SOUTHBOUND	BRONX RIVER		WO		1	S	3/26/2014	4.300	F	2,800	\$12,390,000	212		
2242082	B	BRONX BOULEVARD NORTHBOUND	BRONX RIVER		WO		1	S	3/26/2014	4.467	F	2,800	\$12,390,000	212		
2242099	B	PARK ROAD (204TH STREET)	BRONX RIVER		WO		1	S	5/6/2014	4.655	F	4,700	\$20,797,500	212		
2242100	B	BOTANICAL GARDEN ROAD	TWIN LAKES		WO	P	1	S	2/26/2014	4.833	F	2,200	\$9,735,000	227		
2242110	B	BOSTON ROAD	BRONX RIVER		WO		1	S	2/26/2014	4.227	F	6,200	\$27,435,000	227		
2242120	B	FOOTBRIDGE NORTH OF ROUTE 1	BRONX RIVER		WO-PED	P	1	C	8/7/2013	3.583	F	1,900	\$8,407,500	227		

**INVENTORY SORTED BY B.I.N.**

BIN	BORO	FEATURE CARRIED	FEATURE CROSSED	RAIL L RO	BRIDGE TYPE	OTHER OWNER	SPA NS	RT NG SR	Inspection Date	Condition Rating	VR BL RT	DECK AREA	REPLACEMENT COST	CD	CD2	CD3
2242149	B	EAST TREMONT AVENUE	BRONX RIVER		WO		2	S	5/7/2014	4.361	F	12,900	\$57,082,500	206		
2242210	B	MAGNOLIA WAY	BRONX RIVER		WO	P	3	S	5/6/2014	4.763	F	6,200	\$27,435,000	227		
2242220	B	SNUFF MILL ROAD	BRONX RIVER		WO	P	2	S	1/9/2014	4.395	F	4,800	\$21,240,000	227		
2242259	B	GRAND CONCOURSE	EAST 161ST STREET		O		1	S	6/30/2014	6.333	VG	27,017	\$119,550,225	204		
2242260	B	EAGLE AVENUE	EAST 161ST STREET		O		1	S	2/14/2014	5.117	G	2,800	\$12,390,000	201	203	
2242280	B	GRAND CONCOURSE	EAST 167TH STREET		O		2	S	7/2/2014	4.754	F	42,900	\$189,832,500	204		
2242299	B	GRAND CONCOURSE	EAST 138TH STREET		O		1	S	6/11/2013	4.867	F	9,500	\$42,037,500	201		
2242300	B	GRAND CONCOURSE	EAST 170TH STREET		O		2	S	3/19/2014	4.754	F	39,300	\$173,902,500	204		
2242319	B	GRAND CONCOURSE	EAST 174TH STREET	T	O		1	S	3/18/2014	4.067	F	14,900	\$65,932,500	204		
2242329	B	GRAND CONCOURSE	EAST 175TH STREET	T	O		1	S	6/11/2014	4.833	F	11,900	\$52,657,500	205		
2242330	B	GRAND CONCOURSE	EAST TREMONT AVENUE		O		1	S	9/12/2013	5.883	G	11,700	\$51,772,500	205		
2242340	B	GRAND CONCOURSE	EAST KINGSBRIDGE		O		2	S	6/12/2014	4.714	F	18,285	\$80,911,125	207		
2242350	B	EAST FORDHAM ROAD	GRAND CONCOURSE		O		1	S	3/7/2014	4.833	F	10,300	\$45,577,500	205	207	
2242360	B	GRAND CONCOURSE	BURNSIDE AVENUE		O		2	S	6/30/2014	4.265	F	8,400	\$37,170,000	205		
2242370	B	GRAND CONCOURSE	BEDFORD PARK BOULEVARD		O		1	S	2/21/2014	4.373	F	8,418	\$37,249,650	207		
2242380	B	GRAND CONCOURSE	EAST 204TH STREET		O		1	S	9/11/2013	5.484	G	9,272	\$41,028,600	207		
2242400	B	EAST 180TH STREET	BRONX RIVER		WO		1	S	9/26/2014	4.810	F	4,500	\$19,912,500	206	227	
2242430	B	GUN HILL ROAD	BRONX BOULEVARD		O		4	S	2/20/2014	4.947	F	9,400	\$41,595,000	212		
2242440	B	GUN HILL ROAD	BRONX RIVER		WO		1	S	1/14/2014	5.300	G	8,700	\$38,497,500	212		
2242459	B	EAST 233RD STREET	BRONX RIVER		WO		1	S	2/26/2014	4.233	F	7,000	\$30,975,000	212		
2242460	B	EAST 233RD STREET	ENTRANCE ROAD BRONX RIVER PARKWAY		O		1	S	1/7/2014	4.900	F	5,300	\$23,452,500	212		
2243010	K	LINCOLN ROAD	BMT SUBWAY, BRIGHTON	T	O		1	S	5/19/2014	6.685	VG	6,243	\$27,625,275	355		
2243020	K	PARKSIDE AVENUE - OCEAN AVENUE	BMT SUBWAY, BRIGHTON	T	O		6	S	6/18/2014	4.043	F	48,700	\$215,497,500	314		
2243040	K	CROOKE AVENUE	BMT SUBWAY, BRIGHTON	T	O		4	S	6/11/2014	4.421	F	6,000	\$26,550,000	314		
2243050	K	CATON AVENUE	BMT SUBWAY, BRIGHTON	T	O		4	S	8/23/2013	4.842	F	20,800	\$92,040,000	314		
2243080	K	EAST 18TH STREET - CHURCH AVE	BMT SUBWAY, BRIGHTON	T	O		4	S	8/20/2013	4.545	F	18,200	\$80,535,000	314		
2243100	K	BEVERLY ROAD	BMT SUBWAY, BRIGHTON	T	O		3	S	6/3/2014	4.263	F	4,200	\$18,585,000	314		
2243110	K	CORTEYOU ROAD	BMT SUBWAY, BRIGHTON	T	O		3	S	8/20/2013	6.139	VG	4,810	\$21,284,250	314		
2243120	K	DORCHESTER ROAD	BMT SUBWAY, BRIGHTON	T	O		1	S	6/16/2014	5.863	G	4,825	\$21,350,625	314		
2243130	K	DITMAS AVENUE	BMT SUBWAY, BRIGHTON	T	O		1	S	8/22/2013	5.723	G	5,150	\$22,788,750	314		
2243140	K	NEWKIRK AVENUE	BMT SUBWAY, BRIGHTON	T	O		3	S	6/17/2014	4.574	F	4,100	\$18,142,500	314		
2243150	K	FOSTER AVENUE	BMT SUBWAY, BRIGHTON	T	O		1	S	6/9/2014	4.417	F	3,000	\$13,275,000	314		
2243170	K	STERLING PLACE	FRANKLIN SHUTTLE	T	O		1	S	8/23/2013	6.438	VG	2,300	\$10,177,500	308		
2243180	K	ST JOHNS PLACE	FRANKLIN SHUTTLE	T	O		1	S	8/23/2013	6.656	VG	2,300	\$10,177,500	308		
2243190	K	LINCOLN PLACE	FRANKLIN SHUTTLE	T	O		1	S	6/26/2014	6.672	VG	2,460	\$10,885,500	308		
2243200	K	UNION STREET	FRANKLIN SHUTTLE	T	O		2	S	6/25/2014	4.913	F	4,100	\$18,142,500	309		
2243210	K	PRESIDENT STREET	FRANKLIN SHUTTLE	T	O		2	S	6/25/2014	5.078	G	2,500	\$11,062,500	309		

**INVENTORY SORTED BY B.I.N.**

BIN	BORO	FEATURE CARRIED	FEATURE CROSSED	RAIL L RO	BRIDGE TYPE	OTHER OWNER	SPA NS	RT NG SR	Inspection Date	Condition Rating	VR BL RT	DECK AREA	REPLACEMENT COST	CD	CD2	CD3
2243220	K	CARROLL STREET PEDESTRIAN BRIDGE	FRANKLIN SHUTTLE	T	O-PED		3	C	4/29/2014	5.789	G	600	\$2,655,000	309		
2243230	K	CROWN STREET	FRANKLIN SHUTTLE	T	O		3	S	8/8/2013	5.014	G	4,060	\$17,965,500	309		
2243240	K	MONTGOMERY STREET	FRANKLIN SHUTTLE	T	O		1	S	8/8/2013	5.843	G	2,240	\$9,912,000	309		
2243250	K	WASHINGTON AVENUE	FRANKLIN SHUTTLE	T	O		1	S	6/24/2014	6.000	G	3,657	\$16,182,225	309	355	
2243260	K	FLATBUSH AVENUE	FRANKLIN SHUTTLE	T	O		2	S	6/23/2014	4.961	F	11,300	\$50,002,500	309		
2243279	K	EASTERN PARKWAY	FRANKLIN SHUTTLE	T	O		1	S	6/27/2014	4.833	F	7,700	\$34,072,500	309	308	
2243280	K	6TH AVENUE	LIRR ATLANTIC AVENUE	L	O		9	S	9/5/2014	5.431	G	12,276	\$54,321,300	302		
2243290	K	CARLTON AVENUE	LIRR ATLANTIC AVENUE	L	O		4	S	7/29/2013	6.806	VG	15,400	\$68,145,000	302		
2243310	K	2ND AVENUE	LIRR BAY RIDGE	N	O		2	S	10/7/2014	6.208	VG	17,751	\$78,548,175	310		
2243320	K	3RD AVENUE	LIRR BAY RIDGE	N	O		4	S	9/17/2013	4.917	F	17,230	\$76,242,750	310		
2243330	K	4TH AVENUE	LIRR BAY RIDGE	NT	O		4	S	8/30/2013	5.597	G	13,668	\$60,480,900	310		
2243340	K	15TH AVENUE	LIRR BAY RIDGE	N	O		1	S	10/3/2014	4.872	F	3,614	\$15,991,950	311		
2243350	K	60TH STREET	LIRR BAY RIDGE	N	O		1	S	9/4/2013	6.133	VG	3,900	\$17,257,500	311		
2243360	K	16TH AVENUE	LIRR BAY RIDGE	N	O		1	S	10/3/2014	5.350	G	4,345	\$19,226,625	311		
2243370	K	17TH AVENUE	LIRR BAY RIDGE	N	O		1	S	10/2/2014	4.745	F	3,406	\$15,071,550	312		
2243380	K	18TH AVENUE	LIRR BAY RIDGE	N	O		1	S	10/2/2014	4.625	F	6,006	\$26,576,550	312		
2243390	K	52ND STREET	LIRR BAY RIDGE	N	O		1	S	10/1/2014	6.017	VG	3,293	\$14,571,525	312		
2243400	K	50TH STREET	LIRR BAY RIDGE	N	O		2	S	9/5/2013	4.731	F	7,100	\$31,417,500	312		
2243410	K	MCDONALD AVENUE	LIRR BAY RIDGE	N	O		1	S	10/1/2014	5.141	G	2,760	\$12,213,000	312		
2243420	K	EAST 3RD STREET	LIRR BAY RIDGE	N	O		1	S	8/8/2013	6.517	VG	1,840	\$8,142,000	312		
2243439	K	OCEAN PARKWAY	LIRR BAY RIDGE	N	O		1	S	9/19/2014	4.927	F	7,000	\$30,975,000	312		
2243440	K	CONEY ISLAND AVENUE	LIRR BAY RIDGE	N	O		1	S	9/18/2014	5.043	G	3,231	\$14,297,175	312		
2243450	K	EAST 14TH STREET	LIRR BAY RIDGE	N	O		1	S	9/17/2014	4.809	F	1,775	\$7,854,375	314		
2243460	K	EAST 15TH STREET PEDESTRIAN BRIDGE	LIRR BAY RIDGE	N	O-PED		3	C	8/12/2014	5.592	G	900	\$3,982,500	314		
2243480	K	OCEAN AVENUE	LIRR BAY RIDGE	N	O		2	S	9/16/2014	4.965	F	5,000	\$22,125,000	314		
2243490	K	BEDFORD AVENUE	LIRR BAY RIDGE	N	O		6	S	9/15/2014	5.097	G	12,000	\$53,100,000	314		
2243500	K	NOSTRAND AVENUE	LIRR BAY RIDGE	N	O		2	S	9/29/2014	4.898	F	4,320	\$19,116,000	314		
2243510	K	FLATBUSH AVENUE	LIRR BAY RIDGE	N	O		2	S	9/30/2014	4.651	F	5,900	\$26,107,500	318		
2243520	K	BROOKLYN AVENUE	LIRR BAY RIDGE	N	O		3	S	8/8/2013	5.873	G	4,500	\$19,912,500	318		
2243530	K	AVENUE H	LIRR BAY RIDGE	N	O		2	S	9/9/2013	5.956	G	35,100	\$155,317,500	318		
2243569	K	ATLANTIC AVENUE	LIRR ATLANTIC AVENUE	L	O		75	S	6/18/2014	3.620	F	135,100	\$597,817,500	316	305	
2243570	K	86TH STREET	BMT SEA BEACH	T	O		1	S	6/4/2014	5.797	G	12,167	\$53,838,975	313		
2243580	K	5TH AVENUE	LIRR & SEA BEACH	NT	O		4	S	10/27/2014	3.882	F	12,395	\$54,847,875	310		
2243590	K	6TH AVENUE	LIRR & SEA BEACH	NT	O		2	S	7/16/2013	6.056	VG	14,382	\$63,640,350	310		
2243600	K	7TH AVENUE	LIRR & SEA BEACH	NT	O		7	S	10/22/2014	4.806	F	18,628	\$82,428,900	310		
2243610	K	8TH AVENUE	LIRR & SEA BEACH	NT	O		2	S	7/15/2013	6.181	VG	10,834	\$47,940,450	310		
2243620	K	FORT HAMILTON PARKWAY	LIRR & SEA BEACH	NT	O		3	S	6/19/2014	4.729	F	14,800	\$65,490,000	310		



**INVENTORY SORTED BY B.I.N.**

BIN	BORO	FEATURE CARRIED	FEATURE CROSSED	RAIL L R O	BRIDGE T Y P E	OTHER O W N E R	SPA N S	RT N G S R	Inspection Date	Condition Rating	VR B L R T	DECK AREA	REPLACEMENT COST	CD	CD2	CD3
2243630	K	11TH AVENUE	LIRR & SEA BEACH	NT	O		5	S	7/1/2014	5.985	G	9,700	\$42,922,500	310		
2243640	K	13TH AVENUE	LIRR & SEA BEACH	NT	O		5	S	7/15/2013	4.972	F	16,000	\$70,800,000	310		
2243650	K	14TH AVENUE	LIRR BAY RIDGE	N	O		1	S	10/3/2014	6.167	VG	4,720	\$20,886,000	311		
2243660	K	NEW UTRECHT AVENUE	LIRR BAY RIDGE	N	O		1	S	10/3/2014	5.883	G	2,350	\$10,398,750	311		
2243670	K	15TH AVENUE	BMT SEA BEACH	T	O		4	S	6/24/2013	6.136	VG	16,020	\$70,888,500	311		
2243680	K	16TH AVENUE	BMT SEA BEACH	T	O		3	S	6/6/2014	5.481	G	6,816	\$30,160,800	311		
2243690	K	17TH AVENUE	BMT SEA BEACH	T	O		4	S	5/30/2014	6.173	VG	8,946	\$39,586,050	311		
2243700	K	18TH AVENUE	BMT SEA BEACH	T	O		1	S	7/25/2013	6.632	VG	5,200	\$23,010,000	311		
2243710	K	19TH AVENUE	BMT SEA BEACH	T	O		4	S	5/29/2014	4.237	F	4,800	\$21,240,000	311		
2243720	K	20TH AVENUE	BMT SEA BEACH	T	O		1	S	6/2/2014	6.421	VG	7,000	\$30,975,000	311		
2243730	K	65TH STREET	BMT SEA BEACH	T	O		4	S	5/23/2014	5.132	G	12,000	\$53,100,000	311		
2243740	K	BAY PARKWAY	BMT SEA BEACH	T	O		4	S	5/22/2014	4.658	F	16,800	\$74,340,000	311		
2243750	K	AVENUE O	BMT SEA BEACH	T	O		1	S	8/12/2013	5.706	G	4,658	\$20,611,650	311		
2243760	K	AVENUE P	BMT SEA BEACH	T	O		1	S	8/13/2013	6.140	VG	5,544	\$24,532,200	311		
2243770	K	KINGS HIGHWAY	BMT SEA BEACH	T	O		1	S	6/28/2013	6.628	VG	5,032	\$22,266,600	311		
2243780	K	HIGHLAWN AVENUE	BMT SEA BEACH	T	O		1	S	8/16/2013	6.440	VG	6,960	\$30,798,000	311		
2243790	K	AVENUE S	BMT SEA BEACH	T	O		1	S	7/2/2013	5.967	G	5,360	\$23,718,000	315		
2243800	K	AVENUE T	BMT SEA BEACH	T	O		1	S	7/3/2013	6.200	VG	5,360	\$23,718,000	311		
2243810	K	AVENUE U	BMT SEA BEACH	T	O		1	S	6/20/2014	5.294	G	5,880	\$26,019,000	315		
2243820	K	21ST AVENUE	BMT SEA BEACH	T	O		4	S	7/9/2014	4.289	F	21,400	\$94,695,000	311		
2243839	K	4TH AVENUE	NYCTA BMT TRACKS	T	O		1	S	8/20/2013	6.250	VG	4,440	\$19,647,000	307		
2243840	K	9TH AVENUE	NYCTA BMT YARD	T	O		5	S	8/19/2013	5.736	G	12,440	\$55,047,000	312		
2243850	K	LIBERTY AVENUE	LIRR BAY RIDGE	N	O		3	S	9/23/2014	6.103	VG	6,659	\$29,466,075	316		
2243860	K	GLENMORE AVENUE	LIRR BAY RIDGE	N	O		2	S	9/22/2014	6.456	VG	5,616	\$24,850,800	316		
2243870	K	PITKIN AVENUE	LIRR BAY RIDGE	N	O		2	S	9/24/2014	6.279	VG	5,328	\$23,576,400	316		
2243890	K	SUTTER AVENUE	LIRR BAY RIDGE	N	O		3	S	9/26/2014	6.292	VG	5,497	\$24,324,225	316		
2243900	K	BLAKE AVENUE	LIRR BAY RIDGE	N	O		3	S	9/26/2014	4.927	F	4,912	\$21,735,600	316		
2243910	K	LIVONIA AVENUE PEDESTRIAN BRIDGE	LIRR BAY RIDGE	N	O-PED		6	C	8/7/2014	4.833	F	2,500	\$11,062,500	316		
2243920	K	7TH AVENUE	NYCTA BMT YARD	T	O		2	S	6/30/2014	6.042	VG	4,700	\$20,797,500	307		
2243940	K	9TH AVENUE	NYCTA IND SUBWAY	T	O		5	S	8/19/2013	4.737	F	6,300	\$27,877,500	312		
2244010	K	EAST DRIVE (ENDALE ARCH)	PEDESTRIAN PATH NEAR GRAND ARMY PLAZA		O	P	1	C	5/28/2014	4.367	F	1,533	\$6,783,525	355		
2244020	K	WEST DRIVE (MEADOWPORT ARCH)	PEDESTRIAN PATH NEAR GRAND ARMY PLAZA		O	P	1	S	5/16/2013	5.321	G	2,500	\$11,062,500	355		
2244030	K	EAST DRIVE	BRIDLE PATH NEAR ZOO		O	P	1	S	5/17/2013	4.878	F	2,000	\$8,850,000	355		
2244040	K	EAST DRIVE (EAST WOOD ARCH)	PEDESTRIAN PATH NEAR CENTER DRIVE		O	P	1	C	6/16/2014	4.667	F	1,066	\$4,717,050	355		
2244050	K	CENTER DRIVE (NETHERMEAD ARCHES)	PEDESTRIAN PATH & STREAM		WO	P	3	S	5/22/2013	5.000	G	7,020	\$31,063,500	355		
2244060	K	HILL DRIVE (CLEFT RIDGE SPAN)	PEDESTRIAN PATH SOUTH OF BOATHOUSE		O	P	1	C	5/1/2014	4.433	F	750	\$3,318,750	355		
2244100	K	WEST FOOTBRIDGE	PROSPECT PARK STREAM		WO-PED	P	1	C	1/24/2014	4.889	F	308	\$1,362,900	355		

**INVENTORY SORTED BY B.I.N.**

BIN	BORO	FEATURE CARRIED	FEATURE CROSSED	RAIL L RO	BRIDGE TYPE	OTHER OWNER	SPA NS	RT NG SR	Inspection Date	Condition Rating	VR BL RT	DECK AREA	REPLACEMENT COST	CD	CD2	CD3
2244120	K	HILL DRIVE (TERRACE BRIDGE)	PROSPECT PARK LAKE		WO	P	3	S	9/16/2014	3.436	F	7,800	\$34,515,000	355		
2244130	K	PEDESTRIAN NEAR BOATHOUSE (LULLWATER BRIDGE)	PROSPECT PARK LAKE		WO-PED	P	1	C	5/22/2014	4.898	F	1,000	\$4,425,000	355		
2244150	K	RIDGE BOULEVARD	SHORE ROAD DRIVE		O		1	S	6/10/2013	6.333	VG	4,350	\$19,248,750	310		
2244160	K	3RD AVENUE	SHORE ROAD DRIVE		O		1	S	6/14/2013	6.727	VG	4,360	\$19,293,000	310		
2244170	K	ATLANTIC AVENUE SERVICE ROAD EASTBOUND	EAST NEW YORK AVENUE		O		2	S	8/5/2013	5.474	G	3,192	\$14,124,600	305		
2244180	K	ATLANTIC AVENUE SERVICE ROAD WESTBOUND	EAST NEW YORK AVENUE		O		2	S	8/5/2013	5.105	G	5,600	\$24,780,000	305		
2244440	K	FLEET WALK PEDESTRIAN BRIDGE	NAVY STREET		O-PED		1	C	8/21/2014	3.958	F	620	\$2,743,500	302		
2244460	K	CONDUIT BOULEVARD NORTHBOUND	ATLANTIC AVENUE EASTBOUND		O		1	S	10/10/2014	4.833	F	3,800	\$16,815,000	305		
2244470	K	SEELEY STREET	PROSPECT AVENUE		O		1	S	7/25/2014	4.033	F	8,482	\$37,532,850	307		
2244480	K	5TH AVENUE	GREENWOOD CEMETERY		O		1	S	9/25/2013	5.333	G	3,600	\$15,930,000	307		
2245010	M	11TH AVENUE VIADUCT	LIRR WEST SIDE YARD	AL	O		39	S	12/12/2014	4.056	F	149,100	\$659,767,500	104		
224501B	M	WEST 33RD STREET	AMTRAK 30 STREET BRANCH	A	OR		8	S	3/7/2014	4.500	F	16,500	\$73,012,500	104		
224501C	M	WEST 33RD STREET	LAND ADJACENT TO AMTRAK	A	OR		2	S	5/14/2013	4.472	F	2,360	\$10,443,000	104		
224501D	M	WEST 34TH STREET	AMTRAK 30 STREET BRANCH	A	OR		4	S	5/13/2013	4.542	F	11,800	\$52,215,000	104		
224501E	M	WEST 35TH STREET	AMTRAK 30 STREET BRANCH	A	OR		3	S	7/29/2014	4.181	F	6,500	\$28,762,500	104		
224501F	M	WEST 36TH STREET	AMTRAK 30 STREET BRANCH	A	OR		3	S	11/12/2013	4.612	F	5,520	\$24,426,000	104		
2245040	M	MARGARET CORBIN DRIVE	PEDESTRIAN PATH NEAR CAFE		O	P	1	C	6/9/2014	4.933	F	598	\$2,646,150	112		
2245050	M	MARGARET CORBIN DRIVE	PEDESTRIAN PATH NEAR NORTH ENTRANCE		O	P	1	C	4/8/2014	4.600	F	889	\$3,933,825	112		
2245060	M	WEST 37TH STREET	AMTRAK 30 STREET BRANCH	A	O		3	S	11/12/2013	6.190	VG	7,505	\$33,209,625	104		
2245070	M	WEST 38TH STREET	AMTRAK 30 STREET BRANCH	A	O		2	S	7/8/2014	4.135	F	6,200	\$27,435,000	104		
2245080	M	WEST 39TH STREET	AMTRAK 30 STREET BRANCH	A	O		3	S	7/8/2014	4.173	F	6,300	\$27,877,500	104		
2245090	M	WEST 43RD STREET	AMTRAK 30 STREET BRANCH	A	O		2	S	4/18/2014	4.662	F	4,140	\$18,319,500	104		
2245100	M	WEST 44TH STREET	AMTRAK 30 STREET BRANCH	A	O		2	S	4/18/2014	4.559	F	4,300	\$19,027,500	104		
2245110	M	WEST 45TH STREET	AMTRAK 30 STREET BRANCH	A	O		2	S	4/29/2014	5.338	G	4,100	\$18,142,500	104		
2245120	M	WEST 46TH STREET	AMTRAK 30 STREET BRANCH	A	O		2	S	4/29/2014	4.500	F	4,100	\$18,142,500	104		
2245130	M	WEST 47TH STREET	AMTRAK 30 STREET BRANCH	A	O		2	S	5/6/2014	4.721	F	4,100	\$18,142,500	104		
2245140	M	WEST 48TH STREET	AMTRAK 30 STREET BRANCH	A	O		2	S	5/6/2014	4.618	F	4,100	\$18,142,500	104		
2245150	M	WEST 49TH STREET	AMTRAK 30 STREET BRANCH	A	O		3	S	5/6/2014	4.426	F	4,100	\$18,142,500	104		
2245160	M	WEST 51ST STREET	AMTRAK 30 STREET BRANCH	A	O		2	S	5/13/2014	4.853	F	4,300	\$19,027,500	104		
2245170	M	WEST 52ND STREET	AMTRAK 30 STREET BRANCH	A	O		2	S	5/13/2014	5.191	G	4,300	\$19,027,500	104		
2245180	M	WEST 53RD STREET	AMTRAK 30 STREET BRANCH	A	O		2	S	5/20/2014	5.221	G	5,100	\$22,567,500	104		
2245190	M	WEST 58TH STREET	AMTRAK 30 STREET BRANCH	A	O		2	S	5/20/2014	4.706	F	4,100	\$18,142,500	104		
2245209	M	11TH AVENUE	AMTRAK 30 STREET BRANCH	A	O		2	S	6/4/2014	4.426	F	15,400	\$68,145,000	104		
2245210	M	WEST 42ND STREET	AMTRAK 30 STREET BRANCH	A	O		4	S	11/5/2014	4.587	F	10,300	\$45,577,500	104		
2245220	M	WEST 57TH STREET	AMTRAK 30 STREET BRANCH	A	O		3	S	5/20/2014	4.853	F	9,100	\$40,267,500	104		
2245230	M	WEST 148TH STREET PEDESTRIAN BRIDGE	AMTRAK 30 STREET BRANCH	A	O-PED	P	5	C	8/9/2013	4.200	F	1,100	\$4,867,500	109		
2245250	M	WEST 158TH STREET	AMTRAK 30 STREET BRANCH	A	O		7	S	10/18/2013	5.903	G	29,170	\$129,077,250	112		

**INVENTORY SORTED BY B.I.N.**

BIN	BORO	FEATURE CARRIED	FEATURE CROSSED	RAIL L RO	BRIDGE TYPE	OTHER OWNER	SPA NS	RT NG SR	Inspection Date	Condition Rating	VR BL RT	DECK AREA	REPLACEMENT COST	CD	CD2	CD3
2245260	M	WEST 173RD SREEET PEDESTRIAN BRIDGE	AMTRAK 30 STREET BRANCH	A	O-PED	P	2	C	8/6/2013	4.600	F	1,500	\$6,637,500	112		
2245290	M	WEST 155TH STREET PEDESTRIAN BRIDGE	AMTRAK 30 STREET BRANCH	A	O-PED		3	C	7/30/2013	3.862	F	800	\$3,540,000	109	112	
2245300	M	INWOOD HILL PARK FOOTBRIDGE	AMTRAK 30 STREET BRANCH	A	O-PED	P	6	C	8/6/2013	4.100	F	700	\$3,097,500	112		
2245319	M	EAST 97TH STREET	METRO NORTH MAIN LN	M	O		1	S	12/17/2014	4.647	F	3,200	\$14,160,000	111		
2245330	M	WEST 41ST STREET	AMTRAK 30 STREET BRANCH	A	O		3	S	7/24/2014	4.444	F	6,200	\$27,435,000	104		
2245340	M	WEST 50TH STREET	AMTRAK 30 STREET BRANCH	A	O		2	S	5/13/2014	4.500	F	4,100	\$18,142,500	104		
2245350	M	WEST 54TH STREET	AMTRAK 30 STREET BRANCH	A	O		2	S	5/20/2014	5.492	G	4,700	\$20,797,500	104		
2245360	M	WEST 55TH STREET	AMTRAK 30 STREET BRANCH	A	O		2	S	5/20/2014	5.529	G	4,300	\$19,027,500	104		
2245370	M	WEST 56TH STREET	AMTRAK 30 STREET BRANCH	A	O		2	S	5/20/2014	5.397	G	4,400	\$19,470,000	104		
2245380	M	TRANSVERSE ROAD #1 WESTBOUND	PEDESTRIAN PATH OPPOSITE EAST 66TH STREET		O	P	1	S	1/15/2014	5.000	G	1,500	\$6,637,500	164		
2245420	M	WEST 65TH STREET ENTRANCE EASTBOUND	BRIDLE PATH WEST END		O	P	1	S	1/14/2014	5.100	G	1,300	\$5,752,500	164		
2245440	M	WEST 40TH STREET	AMTRAK 30 STREET BRANCH	A	O		4	S	7/23/2014	4.103	F	9,400	\$41,595,000	104		
2245460	M	PARK AVE SOUTHBOUND	EAST 45TH STREET		O		1	S	5/22/2014	4.514	F	2,400	\$10,620,000	105		
2245470	M	PARK AVE NORTHBOUND	EAST 45TH STREET		O		1	S	5/21/2014	4.865	F	2,400	\$10,620,000	105		
2245480	M	TO GEORGE WASHINGTON BRIDGE OPPOSITE WEST 171ST STREET	RIVERSIDE DRIVE		O		1	S	2/24/2014	4.524	F	10,773	\$47,670,525	112		
2246000	M	WEST DRIVE (GREYSHOT ARCH)	PEDESTRIAN PATH BETWEEN 61ST & 62ND STREETS		O	P	1	S	1/8/2014	5.400	G	2,500	\$11,062,500	164		
2246010	M	WEST 62ND STREET PEDESTRIAN BRIDGE (PINEBANK ARCH)	BRIDLE PATH		O-PED	P	1	C	7/22/2014	4.654	F	1,000	\$4,425,000	164		
2246030	M	EAST 62ND STREET PEDESTRIAN BRIDGE (GAPSTOW BRIDGE)	THE POND		O-PED	P	1	C	4/21/2014	3.897	F	1,400	\$6,195,000	164		
2246040	M	EAST DRIVE (INSCOPE ARCH)	PEDESTRIAN PATH OPPOSITE EAST 62ND STREET		O	P	1	C	4/30/2014	4.400	F	1,515	\$6,703,875	164		
2246050	M	CENTER DRIVE (DRIPROCK ARCH)	PEDESTRIAN OPPOSITE 63RD STREET		O	P	1	S	1/14/2014	4.867	F	1,725	\$7,633,125	164		
2246069	M	EAST DRIVE (GREEN GAP ARCH)	PEDESTRIAN PATH BETWEEN 63RD & 64TH STREETS		O	P	1	S	1/16/2014	4.433	F	2,075	\$9,181,875	164		
2246070	M	CENTER DRIVE (PLAYMATES ARCH)	PEDESTRIAN PATH OPPOSITE 65TH STREET		O	P	1	C	6/11/2014	4.500	F	1,129	\$4,995,825	164		
2246080	M	WEST DRIVE (DALEHEAD ARCH)	BRIDLE OPPOSITE WEST 64TH STREET		O	P	1	S	1/14/2014	4.667	F	2,000	\$8,850,000	164		
2246090	M	PEDESTRIAN BRIDGE OPPOSITE 65TH STREET	TRANSVERSE ROAD #1		O-PED	P	1	C	9/19/2014	4.655	F	2,300	\$10,177,500	164		
2246100	M	CENTER DRIVE	TRANSVERSE ROAD #1		O	P	1	S	2/7/2014	4.467	F	6,000	\$26,550,000	164		
2246110	M	EAST DRIVE	TRANSVERSE ROAD #1		O	P	1	S	3/19/2014	4.667	F	6,000	\$26,550,000	164		
2246120	M	WEST DRIVE	TRANSVERSE ROAD #1		O	P	1	S	3/25/2014	4.700	F	7,900	\$34,957,500	164		
2246130	M	EAST DRIVE (WILLOWDELL ARCH)	PEDESTRIAN PATH OPPOSITE EAST 67TH STREET		O	P	1	C	4/29/2014	3.500	F	666	\$2,947,050	164		
2246140	M	WEST 72ND STREET ENTRANCE (RIFTSTONE ARCH)	BRIDLE PATH		O	P	1	S	1/8/2014	4.467	F	3,600	\$15,930,000	164		
2246150	M	72ND STREET CROSS DRIVE (TERRACE BRIDGE)	PEDESTRIAN PATH TO FOUNTAIN		O	P	3	S	2/24/2014	5.786	G	7,300	\$32,302,500	164		
2246160	M	73RD STREET PEDESTRIAN BRIDGE (BOW BRIDGE)	THE LAKE		WO-PED	P	1	C	4/8/2014	3.946	F	1,700	\$7,522,500	164		
2246170	M	EAST DRIVE (TREFOIL ARCH)	PEDESTRIAN PATH OPPOSITE EAST 73RD STREET		O	P	1	S	1/24/2014	5.130	G	1,900	\$8,407,500	164		
2246230	M	EAST DRIVE	TRANSVERSE ROAD #2		O	P	1	S	3/11/2014	4.600	F	5,080	\$22,479,000	164		
2246240	M	WEST DRIVE	TRANSVERSE ROAD #2		O	P	1	S	3/12/2014	4.167	F	7,200	\$31,860,000	164		
2246250	M	EAST DRIVE	TRANSVERSE ROAD #3		O	P	1	S	1/17/2014	4.300	F	4,500	\$19,912,500	164		
2246260	M	WEST DRIVE	TRANSVERSE ROAD #3		O	P	1	S	3/18/2014	4.800	F	5,100	\$22,567,500	164		
2246270	M	EAST DRIVE	TRANSVERSE ROAD #4		O	P	1	S	3/20/2014	4.100	F	7,000	\$30,975,000	164		

**INVENTORY SORTED BY B.I.N.**

BIN	BORO	FEATURE CARRIED	FEATURE CROSSED	RAIL RO	BRIDGE TYPE	OTHER OWNER	SPANS	RT NG SR	Inspection Date	Condition Rating	VR BL RT	DECK AREA	REPLACEMENT COST	CD	CD2	CD3
2246280	M	WEST DRIVE	TRANSVERSE ROAD #4		O	P	1	S	3/21/2014	4.167	F	4,700	\$20,797,500	164		
2246320	M	WEST 77TH STREET PEDESTRIAN (OAK BRIDGE)	THE LAKE		WO-PED	P	3	C	4/8/2014	5.474	G	1,100	\$4,867,500	164		
2246330	M	WEST DRIVE (BALCONY BRIDGE)	STREAM TO THE LAKE		WO	P	1	S	1/15/2014	5.000	G	1,817	\$8,040,225	164		
2246340	M	WEST 77TH STREET PEDESTRIAN (LADIES POND BRIDGE)	STREAM TO THE LAKE		WO-PED	P	3	C	10/17/2014	4.355	F	500	\$2,212,500	164		
2246350	M	EAST DRIVE (GREYWACKE ARCH)	PEDESTRIAN PATH OPPOSITE EAST 80TH STREET		O	P	1	C	5/23/2014	3.733	F	1,266	\$5,602,050	164		
2246360	M	WEST DRIVE (WINTERDALE ARCH)	PEDESTRIAN PATH OPPOSITE WEST 82ND STREET		O	P	1	S	1/16/2014	5.182	G	2,502	\$11,071,350	164		
2246380	M	WEST 86TH STREET PEDESTRIAN (SOUTHWEST RESERVOIR BRIDGE)	BRIDLE PATH		O-PED	P	1	C	10/17/2014	4.852	F	700	\$3,097,500	164		
2246390	M	EAST 86TH STREET PEDESTRIAN (SOUTHEAST RESERVOIR BRIDGE)	BRIDLE PATH		O-PED	P	3	C	10/17/2014	4.509	F	1,100	\$4,867,500	164		
2246400	M	PEDESTRIAN PATH OPPOSITE EAST 79TH STREET	TRANSVERSE ROAD #2		O-PED	P	1	C	7/14/2013	4.233	F	3,700	\$16,372,500	164		
2246410	M	TRANSVERSE ROAD 1 EASTBOUND (DENESMOUTH ARCH)	PEDESTRIAN PATH OPPOSITE EAST 65TH STREET		O	P	1	S	2/24/2014	4.636	F	1,739	\$7,695,075	164		
2246430	M	WEST 110TH STREET ENTRANCE (MOUNTCLIFF ARCH)	PEDESTRIAN PATH OPPOSITE WEST 109TH STREET		O	P	1	S	2/24/2014	4.317	F	1,200	\$5,310,000	164		
2246440	M	79TH STREET PEDESTRIAN BRIDGE	TRANSVERSE ROAD #2		O-PED	P	1	C	7/13/2014	3.926	F	5,900	\$26,107,500	164		
2246450	M	EAST 77TH STREET PEDESTRIAN (GLADE ARCH)	PEDESTRIAN PATH OPPOSITE EAST 77TH STREET		O-PED	P	1	C	4/1/2014	4.138	F	5,000	\$22,125,000	164		
2246460	M	WEST 77TH STREET ENTRANCE (EAGLEVALE ARCH)	PEDESTRIAN PATH OPPOSITE WEST 77TH STREET		O	P	2	S	1/9/2014	4.263	F	3,066	\$13,567,050	164		
2246470	M	EAST DRIVE (HUDDLESTONE ARCH)	THE LOCH		WO	P	1	S	1/28/2014	4.500	F	1,100	\$4,867,500	164		
2246489	M	WEST 181ST STREET	RAMP TO WASHINGTON BRIDGE		O		1	S	1/30/2014	5.200	G	8,200	\$36,285,000	112		
2246490	M	A.C. POWELL BOULEVARD NORTHBOUND	A.C. POWELL BOULEVARD		O		1	S	1/31/2014	4.347	F	3,000	\$13,275,000	110		
2246500	M	FORT TRYON PLACE	ENTRANCE FROM RIVERSIDE DRIVE		O	P	1	S	3/25/2014	4.200	F	3,280	\$14,514,000	112		
2246510	M	CORBIN PLACE OVERPASS	CORBIN PLACE		O	P	1	S	1/8/2014	5.000	G	2,223	\$9,836,775	112		
2246540	M	EAST 34TH STREET	PARK AVENUE TUNNEL		OT		1	S	8/20/2014	4.117	F	36,200	\$160,185,000	105	106	
2246550	M	PARK AVENUE VIADUCT	EAST 42ND STREET		O		10	S	12/10/2014	4.478	F	22,150	\$98,013,750	105		
2246560	M	TUDOR CITY PLACE	EAST 42ND STREET		O		1	S	1/24/2014	5.133	G	6,600	\$29,205,000	106		
2246570	M	EAST 42ND STREET - EAST 47TH STREET	FIRST AVE TUNNEL		OT		2	S	5/20/2014	4.922	F	95,000	\$420,375,000	106		
2246580	BM	HIGH BRIDGE PEDESTRIAN OVERPASS	I87 - HARLEM RIVER	M	WA-PED	P	11	P	8/12/2002	3.759	F	34,100	\$150,892,500	112	204	
2246600	M	WEST 176TH STREET PEDESTRIAN BRIDGE	APPROACH TO GEORGE WASHINGTON BRIDGE		O-PED	P	1	C	3/7/2014	4.200	F	1,200	\$5,310,000	112		
2246620	M	EAST 128TH STREET PEDESTRIAN BRIDGE	3RD AVE BRIDGE APPROACH		O-PED		18	C	12/15/2014	3.939	F	2,300	\$10,177,500	111		
2246660	M	RIVERSIDE DRIVE	WEST 125TH STREET - WEST 134TH STREET		O		27	S	7/12/2013	4.472	F	148,300	\$656,227,500	109		
2246670	M	WEST 134TH STREET	TERRAIN		O		4	S	6/13/2013	4.870	F	7,500	\$33,187,500	109		
2246690	M	ISHAM PARK VEHICULAR	HARLEM RIVER INLET		O	P	1	S	4/28/2014	6.065	VG	911	\$4,031,175	112		
2246700	M	ISHAM PARK PEDESTRIAN BRIDGE	HARLEM RIVER INLET		WO-PED	P	1	C	1/29/2014	3.552	F	300	\$1,327,500	112		
2246710	M	WEST 153RD STREET	A.C. POWELL BLVD		O		1	S	1/31/2014	4.611	F	3,082	\$13,637,850	110		
2246720	M	RIVERSIDE DRIVE	WEST 158TH STREET - AMTRAK	A	O		77	S	10/24/2014	3.528	F	185,658	\$821,536,650	109	112	
2246970	M	RIVERSIDE DRIVE	WEST 96TH STREET		O		3	S	5/6/2013	5.471	G	10,600	\$46,905,000	107		
2246980	M	RIVERSIDE DRIVE	WEST 138TH STREET		O		1	S	1/16/2014	4.900	F	6,700	\$29,647,500	109		
2246990	M	EAST 129TH STREET PEDESTRIAN BRIDGE	3RD AVENUE BRIDGE RAMP		O-PED	P	5	C	12/2/2013	4.095	F	1,046	\$4,628,550	111		
2247020	O	94TH STREET PEDESTRIAN BRIDGE	LIRR PORT WASH BR	L	O-PED		5	C	9/12/2014	4.231	F	905	\$4,004,625	404		
2247040	O	UNION STREET	LIRR PORT WASH BR	L	O		1	S	8/22/2013	6.172	VG	3,313	\$14,660,025	407		

**INVENTORY SORTED BY B.I.N.**

BIN	BORO	FEATURE CARRIED	FEATURE CROSSED	RAIL L RO	BRIDGE TYPE	OTHER OWNER	SPA NS	RT NG SR	Inspection Date	Condition Rating	VR BL RT	DECK AREA	REPLACEMENT COST	CD	CD2	CD3
2247050	O	BOWNE AVENUE	LIRR PORT WASH BR	L	O		1	S	9/24/2014	5.451	G	4,974	\$22,009,950	407		
2247060	O	PARSONS BOULEVARD	LIRR PORT WASH BR	L	O		1	S	9/24/2014	4.824	F	4,200	\$18,585,000	407		
2247070	O	147TH STREET	LIRR PORT WASH BR	L	O		1	S	8/22/2013	5.392	G	2,800	\$12,390,000	407		
2247080	O	149TH STREET	LIRR PORT WASH BR	L	O		1	S	10/31/2014	4.776	F	4,100	\$18,142,500	407		
2247090	O	149TH PLACE	LIRR PORT WASH BR	L	O		2	S	8/21/2013	5.000	G	4,300	\$19,027,500	407		
2247100	O	150TH STREET	LIRR PORT WASH BR	L	O		2	S	8/21/2013	6.029	VG	7,830	\$34,647,750	407		
2247110	O	MURRAY STREET	LIRR PORT WASH BR	L	O		1	S	8/21/2013	5.222	G	4,000	\$17,700,000	407		
2247120	O	WOODSIDE AVENUE	LIRR MAIN LINE	L	O		3	S	9/19/2014	4.413	F	14,900	\$65,932,500	402		
2247130	O	CORPORAL KENNEDY STREET	LIRR PORT WASH BR	L	O		1	S	9/5/2013	6.157	VG	3,379	\$14,952,075	411		
2247140	O	BELL BOULEVARD	LIRR PORT WASH BR	L	O		1	S	9/5/2013	5.780	G	4,320	\$19,116,000	411		
2247150	O	65TH STREET	LIRR MAIN LINE	L	O		3	S	9/5/2013	6.375	VG	6,344	\$28,072,200	402		
2247160	O	65TH PLACE	LIRR MAIN LINE	L	O		3	S	9/5/2013	6.441	VG	8,381	\$37,085,925	402		
2247170	O	DOUGLSTON PARKWAY	LIRR PORT WASH BR	L	O		3	S	10/1/2014	4.542	F	6,300	\$27,877,500	411		
2247180	O	GRAND AVENUE	LIRR MAIN LINE	L	O		3	S	10/1/2014	4.396	F	7,415	\$32,811,375	404		
2247190	O	55TH AVENUE PEDESTRIAN BRIDGE	LIRR MAIN LINE	L	O-PED		3	C	9/17/2014	4.120	F	1,296	\$5,734,800	404		
2247220	O	80TH ROAD	LIRR MAIN LINE	L	O		3	S	8/30/2013	4.794	F	4,100	\$18,142,500	409		
2247230	O	82ND AVENUE	LIRR MAIN LINE	L	O		3	S	8/30/2013	5.311	G	4,100	\$18,142,500	409		
2247240	O	LEFFERTS BOULEVARD	LIRR MAIN LINE	L	O		3	S	8/30/2013	5.806	G	5,460	\$24,160,500	409		
2247260	O	JACKSON AVENUE	LIRR MONTAUK DIV	L	O		1	S	10/8/2014	5.550	G	4,517	\$19,987,725	402		
2247270	O	21ST STREET	LIRR N SHORE YARD	L	O		6	S	9/11/2013	5.153	G	17,590	\$77,835,750	402		
2247290	O	49TH AVENUE	LIRR,AMTRAK	L	O		5	S	11/26/2014	3.819	F	20,400	\$90,270,000	402		
2247300	O	THOMPSON AVENUE	AMTRAK & LIRR YARD	AL	O		14	S	12/6/2012	5.042	G	61,280	\$271,164,000	402		
2247310	O	QUEENS BOULEVARD	AMTRAK & LIRR YARD	AL	O		19	S	12/6/2012	6.268	VG	92,400	\$408,870,000	402	401	
2247320	O	HONEYWELL STREET	AMTRAK & LIRR YARD	AL	O		22	S	9/26/2013	5.903	G	99,036	\$438,234,300	402	401	
2247330	O	39TH STREET (NORTH)	SUNNYSIDE YARD	A	O		14	S	9/30/2013	6.556	VG	48,200	\$213,285,000	402	401	
2247370	O	37TH AVENUE	CSX - HELLGATE	C	O		1	S	8/1/2013	6.234	VG	6,868	\$30,390,900	402		
2247380	O	ROOSEVELT AVENUE	CSX - HELLGATE	C	O		2	S	8/1/2013	6.333	VG	7,380	\$32,656,500	402	403	404
2247390	O	41ST AVENUE	CSX - HELLGATE	C	O		2	S	8/1/2013	4.942	F	4,400	\$19,470,000	402	404	
2247400	O	WOODSIDE AVENUE	CSX TRANSPORT	C	O		1	S	8/9/2013	5.033	G	8,200	\$36,285,000	402	404	
2247410	O	43RD AVENUE	CSX TRANSPORT	C	O		1	S	8/9/2013	5.000	G	4,800	\$21,240,000	402	404	
2247420	O	44TH AVENUE	CSX TRANSPORT	C	O		1	S	8/9/2013	5.000	G	5,100	\$22,567,500	402	404	
2247430	O	45TH AVENUE	CSX TRANSPORT	C	O		1	S	8/9/2013	5.306	G	2,400	\$10,620,000	402	404	
2247440	O	GRAND AVENUE	CSX TRANSPORT	C	O		1	S	8/13/2013	6.183	VG	3,280	\$14,514,000	405		
2247450	O	57TH AVENUE	CSX TRANSPORT	C	O		1	S	8/13/2013	5.976	G	2,248	\$9,947,400	405		
2247460	O	CALDWELL AVENUE	CSX TRANSPORT	C	O		1	S	11/10/2014	5.889	G	2,243	\$9,925,275	405		
2247470	O	ELIOT AVENUE	CSX TRANSPORT	C	O		1	S	8/15/2013	4.972	F	2,960	\$13,098,000	405		
2247480	O	JUNIPER BOULEVARD SOUTH	CSX TRANSPORT	C	O		1	S	8/16/2013	5.000	G	9,000	\$39,825,000	405		

**INVENTORY SORTED BY B.I.N.**

BIN	BORO	FEATURE CARRIED	FEATURE CROSSED	RAIL L RO	BRIDGE TYPE	OTHER OWNER	SPA NS	RT NG SR	Inspection Date	Condition Rating	VR BL RT	DECK AREA	REPLACEMENT COST	CD	CD2	CD3
2247490	O	69TH STREET	CSX TRANSPORT	C	O		1	S	11/10/2014	4.979	F	6,175	\$27,324,375	405		
2247500	O	METROPOLITAN AVENUE	CSX TRANSPORT	C	O		1	S	8/16/2013	4.233	F	18,650	\$82,526,250	405		
2247530	O	ANDREWS AVENUE	LIRR MONTAUK DIV	L	O		1	S	9/3/2013	7.000	VG	1,765	\$7,810,125	405		
2247540	O	60TH STREET	LIRR MONTAUK DIV	L	O		2	S	9/3/2013	5.208	G	5,340	\$23,629,500	405		
2247550	O	ELIOT AVENUE	LIRR MONTAUK DIV	L	O		2	S	8/27/2013	5.712	G	9,550	\$42,258,750	405		
2247570	O	80TH STREET	77TH AVENUE - LIRR MT	L	O		5	S	10/21/2014	4.932	F	11,725	\$51,883,125	405		
2247590	O	FOREST PARK DRIVE	LIRR MONTAUK DIV	L	O	P	5	S	9/22/2014	5.158	G	6,000	\$26,550,000	409		
2247600	O	PARK LANE SOUTH	LIRR MONTAUK DIV	L	O		1	S	9/22/2014	6.983	VG	3,024	\$13,381,200	409	482	
2247620	O	MYRTLE AVENUE	ABANDONED LIRR		O		3	S	1/2/2014	5.028	G	6,725	\$29,758,125	482	406	
2247630	O	PEDESTRIAN BRIDGE NEAR UNION TURNPIKE	ABANDONED LIRR		O-PED		8	C	6/12/2014	4.582	F	1,500	\$6,637,500	406		
2247640	O	39TH STREET (SOUTH)	AMTRAK & LIRR YARD	AL	O		9	S	10/7/2013	5.903	G	34,100	\$150,892,500	402		
2247650	O	60TH ROAD PEDESTRIAN BRIDGE	LIRR MAIN LINE	L	O-PED		3	C	9/16/2014	5.000	G	1,200	\$5,310,000	405	406	
2247660	O	FOREST PARK DRIVE	ABANDONED LIRR		O	P	6	S	2/21/2014	4.524	F	10,000	\$44,250,000	409		
2247680	O	221ST STREET	LIRR PORT WASH BR	L	O		3	S	8/22/2013	5.926	G	6,050	\$26,771,250	411		
2248019	O	WOODHAVEN BOULEVARD	ATLANTIC AVENUE		O		3	S	3/26/2014	4.208	F	19,400	\$85,845,000	409		
2248020	O	WHITELAW PEDESTRIAN BRIDGE	CONDUIT AVENUE		O-PED		7	C	10/17/2014	4.225	F	5,500	\$24,337,500	410		
2248039	O	CROSS BAY BOULEVARD	NASSAU EXPRESSWAY - ROUTE 27		O		2	S	5/31/2013	6.208	VG	16,544	\$73,207,200	410		
2248040	O	RAMP TO LINDEN BOULEVARD	SOUTH CONDUIT AVENUE		O		1	S	5/15/2014	5.200	G	3,352	\$14,832,600	410		
2248059	O	MOTOR PARKWAY (PEDESTRIAN)	FRANCIS LEWIS BOULEVARD		O-PED	P	2	C	6/13/2014	4.528	F	2,800	\$12,390,000	408		
2248060	O	MOTOR PARKWAY (PEDESTRIAN)	BELL BOULEVARD		O-PED	P	2	C	6/29/2014	4.403	F	2,650	\$11,726,250	411		
2248070	O	MOTOR PARKWAY (PEDESTRIAN)	SPRINGFIELD BOULEVARD		O-PED	P	3	C	6/17/2014	3.639	F	2,900	\$12,832,500	411		
2248080	O	MOTOR PARKWAY (PEDESTRIAN)	HOLLIS COURT BOULEVARD		O-PED	P	3	C	11/18/2014	4.672	F	2,700	\$11,947,500	408		
2248090	O	FLUSHING MEADOW PARK PEDESTRIAN	COLLEGE POINT BOULEVARD		O-PED	P	3	C	3/24/2014	4.639	F	8,400	\$37,170,000	407		
2248100	O	MOTOR PARKWAY (PEDESTRIAN)	73RD AVENUE		O-PED	P	3	C	2/11/2014	4.672	F	2,600	\$11,505,000	408		
2248110	O	MOTOR PARKWAY (PEDESTRIAN)	ALLEY PARK PEDESTRIAN WALK		O-PED	P	1	C	6/17/2014	4.056	F	1,000	\$4,425,000	413		
2248129	O	UNION TURNPIKE	CREEDMOORE HOSPITAL ROAD		O		1	S	6/7/2013	4.867	F	3,500	\$15,487,500	413		
2248130	O	FLUSHING MEADOW PARK PEDESTRIAN	WILLOW LAKE & 76TH ROAD		WO-PED	P	4	C	4/20/2002	1.000	C	1,891	\$8,367,675	481		
2248140	O	FLUSHING MEADW PARK ROAD	STREAM NORTH OF LIE		WO	P	5	S	7/31/2013	4.481	F	4,100	\$18,142,500	481		
2248159	O	WOODHAVEN BOULEVARD	QUEENS BOULEVARD		O		2	S	7/17/2014	4.078	F	11,500	\$50,887,500	404		
2248160	O	ELIOT AVENUE	QUEENS BOULEVARD		O		2	S	7/17/2014	4.804	F	13,785	\$60,998,625	406		
2248200	O	RUST STREET	FLUSHING AVENUE		O		1	S	6/21/2013	4.922	F	2,940	\$13,009,500	405		
2248220	O	SERVICE ROAD TURNAROUND	FLUSHING AVENUE		O		1	S	6/21/2013	5.078	G	2,940	\$13,009,500	405		
2248230	O	BEACH CHANNEL DRIVE WESTBOUND	BEACH CHANNEL DRIVE EASTBOUND		O		1	S	6/18/2013	4.400	F	3,600	\$15,930,000	484		
2248240	O	FLUSHING AVENUE SERVICE ROAD	FLUSHING AVENUE		O		1	S	6/21/2013	5.250	G	2,940	\$13,009,500	405		
2248250	O	102ND STREET	HAWTREE BASIN		WO		3	S	7/18/2013	6.015	VG	4,900	\$21,682,500	410		
2248260	O	MEADOW LAKE BRIDGE	MEADOW LAKE		WO	P	5	S	4/29/2014	4.458	F	4,200	\$18,585,000	481		
2248280	O	HIGHLAND PARK PEDESTRIAN	PEDESTRIAN PATH		O-PED	P	1	C	12/31/2014	3.667	F	1,900	\$8,407,500	405		

**INVENTORY SORTED BY B.I.N.**

BIN	BORO	FEATURE CARRIED	FEATURE CROSSED	RAIL RO	BRIDGE TYPE	OTHER OWNER	SPANS	RT NG SR	Inspection Date	Condition Rating	VR BL RT	DECK AREA	REPLACEMENT COST	CD	CD2	CD3
2248299	O	JACKIE ROBINSON PARKWAY-UNION TURNPIKE	AUSTIN STREET		O		1	S	5/23/2014	4.806	F	5,900	\$26,107,500	409	406	
2248300	O	71ST AVENUE	COOPER AVENUE		O		1	S	7/1/2013	4.373	F	2,800	\$12,390,000	405		
2248340	O	FOREST PARK DRIVE	MYRTLE AVENUE		O	P	3	S	5/24/2013	4.984	F	5,100	\$22,567,500	409		
2248369	O	ROCKAWAY BOULEVARD	THURSTON BASIN		WO		2	S	7/16/2013	5.474	G	6,000	\$26,550,000	483	413	
2248379	O	BOATHOUSE BRIDGE	AQUACADE LAKE		WO	P	5	S	8/1/2013	4.296	F	6,300	\$27,877,500	481		
2249040	R	TOMPKINS AVENUE	B&O RR (ABANDONED)		O		1	S	4/4/2014	5.953	G	5,096	\$22,549,800	501		
2249070	R	JOHN STREET PEDESTRIAN BRIDGE	B&O RR (ABANDONED)	O	O-PED		2	C	8/15/2014	5.423	G	1,050	\$4,646,250	501		
2249090	R	MORNINGSTAR ROAD	B&O RR (ABANDONED)	O	O		4	S	5/21/2013	4.898	F	7,900	\$34,957,500	501		
2249100	R	GRANITE AVENUE	B&O RR (ABANDONED)	O	O		4	S	2/4/2014	5.966	G	7,300	\$32,302,500	501		
2249110	R	LAKE AVENUE	B&O RR (ABANDONED)	O	O		3	S	4/18/2014	5.148	G	5,900	\$26,107,500	501		
2249120	R	SIMONSON AVENUE	B&O RR (ABANDONED)	O	O		3	S	5/15/2013	5.852	G	5,819	\$25,749,075	501		
2249130	R	VAN NAME AVENUE	B&O RR (ABANDONED)	O	O		3	S	4/16/2014	5.186	G	5,474	\$24,222,450	501		
2249140	R	VAN PELT AVENUE	B&O RR (ABANDONED)	O	O		3	S	5/16/2013	5.576	G	5,000	\$22,125,000	501		
2249160	R	DE HART AVENUE	B&O RR (ABANDONED)	O	O		4	S	5/15/2013	6.389	VG	6,700	\$29,647,500	501		
2249170	R	UNION AVENUE	B&O RR (ABANDONED)	O	O		4	S	5/14/2013	5.315	G	6,500	\$28,762,500	501		
2249180	R	HARBOR ROAD	CONRAIL - EX B&O RR	C	O		4	S	9/16/2013	6.000	G	5,778	\$25,567,650	501		
2249200	R	SOUTH AVENUE	ARLINGTON YARD	C	O		3	S	9/17/2013	6.527	VG	8,500	\$37,612,500	501		
2249210	R	MAIN STREET PEDESTRIAN BRIDGE	SIRT SOUTH SHORE	S	O-PED		9	C	3/5/2014	4.123	F	400	\$1,770,000	503		
2249230	R	TRACY AVENUE PEDESTRIAN BRIDGE	SIRT SOUTH SHORE	S	O-PED		9	C	3/5/2014	3.894	F	635	\$2,809,875	503		
2249240	R	ARTHUR KILL ROAD	SIRT SOUTH SHORE	S	O		1	S	10/14/2014	4.796	F	3,650	\$16,151,250	503		
2249250	R	BETHEL AVENUE PEDESTRIAN BRIDGE	SIRT SOUTH SHORE	S	O-PED		12	C	3/6/2014	3.525	F	111	\$491,175	503		
2249269	R	PAGE AVENUE	SIRT SOUTH SHORE	S	O		4	S	9/23/2013	5.806	G	30,710	\$135,891,750	503		
2249270	R	RICHMOND VALLY ROAD	SIRT SOUTH SHORE	S	O		4	S	9/13/2013	5.164	G	9,440	\$41,772,000	503		
2249280	R	CHAMP COURT PEDESTRIAN BRIDGE	SIRT SOUTH SHORE	S	O-PED		7	C	3/7/2014	4.393	F	595	\$2,632,875	503		
2249290	R	SEGUINE AVENUE	SIRT SOUTH SHORE	S	O		1	S	8/30/2013	6.016	VG	3,250	\$14,381,250	503		
2249300	R	HUGUENOT AVENUE	SIRT SOUTH SHORE	S	O		2	S	9/24/2013	4.788	F	4,900	\$21,682,500	503		
2249320	R	ALBEE AVENUE	SIRT SOUTH SHORE	S	O		3	S	9/25/2013	4.689	F	6,500	\$28,762,500	503		
2249330	R	ANNADALE ROAD	SIRT SOUTH SHORE	S	O		1	S	8/23/2013	6.233	VG	3,540	\$15,664,500	503		
2249350	R	NELSON AVENUE PEDESTRIAN BRIDGE	SIRT SOUTH SHORE	S	O-PED		3	C	3/10/2014	4.115	F	300	\$1,327,500	503		
2249360	R	GIFFORDS LANE	SIRT SOUTH SHORE	S	O		1	S	10/15/2014	5.625	G	3,042	\$13,460,850	503		
2249370	R	GREAVES AVENUE	SIRT SOUTH SHORE	S	O		1	S	8/22/2013	6.533	VG	2,650	\$11,726,250	503		
2249380	R	GUYON AVENUE	SIRT SOUTH SHORE	S	O		3	S	10/7/2013	4.770	F	6,900	\$30,532,500	503		
2249390	R	CEDARVIEW AVENUE PEDESTRIAN BRIDGE	SIRT SOUTH SHORE	S	O-PED		5	C	3/11/2014	3.615	F	625	\$2,765,625	503		
2249400	R	BEACH AVENUE	SIRT SOUTH SHORE	S	O		2	S	8/19/2013	5.364	G	3,700	\$16,372,500	502		
2249410	R	ROSS AVENUE	SIRT SOUTH SHORE	S	O		2	S	8/20/2013	5.379	G	3,800	\$16,815,000	502		
2249420	R	ROSE AVENUE	SIRT SOUTH SHORE	S	O		2	S	8/21/2013	5.258	G	3,800	\$16,815,000	502		
2249430	R	NEW DORP LANE	SIRT SOUTH SHORE	S	O		2	S	9/9/2013	4.958	F	7,600	\$33,630,000	502		

**INVENTORY SORTED BY B.I.N.**

BIN	BORO	FEATURE CARRIED	FEATURE CROSSED	RAIL L RO	BRIDGE TYPE	OTHER OWNER	SPA NS	RT NG SR	Inspection Date	Condition Rating	VR BL RT	DECK AREA	REPLACEMENT COST	CD	CD2	CD3
2249440	R	BANCROFT AVENUE	SIRT SOUTH SHORE	S	O		3	S	10/9/2013	5.393	G	5,900	\$26,107,500	502		
2249450	R	FREMONT AVENUE PEDESTRIAN BRIDGE	SIRT SOUTH SHORE	S	O-PED		3	C	3/12/2014	4.073	F	800	\$3,540,000	502		
2249460	R	LINCOLN AVENUE	SIRT SOUTH SHORE	S	O		1	S	9/10/2013	5.190	G	4,500	\$19,912,500	502		
2249470	R	MIDLAND AVENUE	SIRT SOUTH SHORE	S	O		1	S	10/29/2013	5.466	G	3,000	\$13,275,000	502		
2249480	R	FINGERBOARD ROAD	SIRT SOUTH SHORE	S	O		2	S	9/26/2013	6.431	VG	5,100	\$22,567,500	502		
2249490	R	CLOVE ROAD	SIRT SOUTH SHORE	S	O		3	S	10/16/2014	5.778	G	5,104	\$22,585,200	502		
2249510	R	TOMPKINS AVENUE	WILLOW AVENUE, SIRT	S	O		2	S	10/17/2014	5.269	G	5,378	\$23,797,650	501		
2249520	R	HANNAH STREET	SIRT SOUTH SHORE	S	O		10	S	10/18/2013	4.966	F	10,020	\$44,338,500	501		
2249530	R	MINTHORNE STREET PEDESTRIAN BRIDGE	SIRT SOUTH SHORE	S	O-PED		26	C	3/13/2014	4.736	F	6,000	\$26,550,000	501		
2249580	R	BELFIELD AVENUE PEDESTRIAN BRIDGE	SIRT SOUTH SHORE	S	O-PED		5	C	3/14/2014	3.980	F	400	\$1,770,000	503		
2249710	R	WEST FOOTBRIDGE	CLOVE LAKE		WO-PED	P	2	C	4/28/2014	3.857	F	900	\$3,982,500	501		
2249720	R	EAST FOOTBRIDGE	CLOVE LAKE		WO-PED	P	2	C	4/28/2014	4.371	F	900	\$3,982,500	501		
2249730	R	BRIDGE OVER DAM	NORTH END CLOVE LAKE		WO-PED	P	1	C	5/6/2014	3.351	F	1,000	\$4,425,000	501		
2249760	R	MARTLINGS AVENUE	RICHMOND LAKE DAM		WO		2	S	6/24/2013	4.467	F	7,000	\$30,975,000	501		
2249770	R	SOUTH OF BROOKS LAKE	STREAM IN PARK		WO-PED	P	3	C	11/26/2013	4.946	F	700	\$3,097,500	501		
2249780	R	FOOTBRIDGE	BROOKS LAKE DAM		WO-PED	P	1	C	5/19/2014	3.433	F	800	\$3,540,000	501		
2249790	R	FOOTBRIDGE SOUTH OF FOREST AVENUE	STREAM IN PARK		WO-PED	P	3	C	10/21/2014	4.651	F	700	\$3,097,500	501		
2249800	R	FOREST AVENUE	CLOVE LAKES PARK STREAM		WO	P	1	S	11/6/2013	4.567	F	1,600	\$7,080,000	501		
2249810	R	HYLAN BOULEVARD	LEMON CREEK		WO		1	S	3/10/2014	6.172	VG	11,400	\$50,445,000	503		
2249820	R	ARTHUR KILL ROAD	ARTHUR KILL STREAM		WO		1	S	5/20/2013	4.184	F	1,500	\$6,637,500	503		
2249840	R	TOMPKINS AVENUE	GREENFIELD AVENUE		O		1	S	3/10/2014	4.638	F	2,690	\$11,903,250	501		
2249860	R	SLATER BOULEVARD	NEW CREEK		WO		1	S	5/17/2013	5.510	G	2,037	\$9,013,725	502		
2249870	R	TRAVIS AVENUE	MAIN CREEK		WO		1	S	10/16/2013	5.483	G	1,700	\$7,522,500	502		
2249880	R	CHELSEA ROAD	SAWMILL CREEK		WO		1	S	5/21/2013	6.633	VG	2,205	\$9,757,125	502		
2257569	M	MILLER HIGHWAY	TERRAIN		A		64	S	12/5/2014	4.352	F	272,475	\$1,205,701,875	104	107	
2266129	O	DOUGLASTON PARKWAY	BCIP SOUTHBOUND		A		1	S	3/10/2014	4.592	F	4,400	\$19,470,000	411		
2266139	O	DOUGLASTON PARKWAY	BCIP NORTHBOUND		A		1	S	3/12/2014	4.653	F	6,400	\$28,320,000	411		
2266149	O	HEMPSTEAD AVENUE	BCIP RAMP NORTHBOUND		A		2	S	3/12/2014	4.190	F	9,500	\$42,037,500	413		
2266160	O	678I SOUTHBOUND TO BCIP EASTBOUND	ACCESS ROAD FROM 678I - BCIP		A		1	S	6/17/2014	3.781	F	2,300	\$10,177,500	407		
2266229	M	HHP	PEDESTRIAN UNDERPASS AT WEST 148TH STREET		A		1	S	1/30/2014	5.000	G	1,840	\$8,142,000	109		
2266230	M	HHP NORTHBOUND	PEDESTRIAN UNDERPASS INWOOD PARK		A		1	S	1/23/2014	5.000	G	800	\$3,540,000	112		
2266240	M	HHP SOUTHBOUND	PEDESTRIAN UNDERPASS INWOOD PARK		A		1	S	1/23/2014	5.526	G	1,100	\$4,867,500	112		
2266540	B	278I	BRUCKNER BOULVARD		A		2	S	7/10/2013	4.435	F	32,900	\$145,582,500	201		
226672A	M	WEST 31ST STREET	AMTRAK LAYUP TRACKS	A	O		9	S	11/15/2014	3.619	F	8,800	\$38,940,000	104		
2266770	O	BCIP	LAURELTON PARKWAY		A		1	S	3/7/2014	4.972	F	9,508	\$42,072,900	413		
2267130	M	RIVERSIDE DRIVE	WEST 145TH STREET		O		1	S	4/29/2013	5.133	G	5,800	\$25,665,000	109		
2267160	O	ROOSEVELT AVENUE	SHEA ROAD		O		4	S	7/29/2013	4.873	F	7,280	\$32,214,000	408		



**INVENTORY SORTED BY B.I.N.**

BIN	BORO	FEATURE CARRIED	FEATURE CROSSED	RAIL L RO	BRIDGE TYPE	OTHER OWNER	SPA NS	RT NG SR	Inspection Date	Condition Rating	VR BL RT	DECK AREA	REPLACEMENT COST	CD	CD2	CD3
2267199	O	FRANCIS LEWIS BOULEVARD	CUNNINGHAM PARK ROAD		O		1	S	5/13/2013	5.033	G	7,085	\$31,351,125	408		
2267240	M	HRD RAMP TO GEORGE WASHINGTON BRIDGE	HARLEM RIVER DRIVE SOUTHBOUND		A		55	S	10/14/2014	3.042	F	122,900	\$543,832,500	112		
2267250	M	HHP	AMTRAK - WEST 96TH STREET	A	A		55	S	11/1/2014	3.548	F	40,000	\$177,000,000	107		
2267380	M	WEST STREET	RECTOR STREET - BROOKLYN BATTERY MANHATTAN PLAZA		AT		1	S	11/19/2013	5.033	G	25,760	\$113,988,000	101		
2267717	M	79TH STREET PEDESTRIAN PLAZA	79TH STREET BOAT BASIN GARAGE		A	P	10	S	5/10/2013	4.444	F	27,400	\$121,245,000	107		
2267718	M	79TH STREET TRAFFIC CIRCLE	79TH STREET PEDESTRIAN PLAZA		A	P	34	S	5/15/2013	3.738	F	24,130	\$106,775,250	107		
226771A	M	79TH STREET RAMP TO HHP	79TH STREET BOAT BASIN GARAGE		AR	P	4	S	5/8/2014	4.221	F	3,131	\$13,854,675	107		
226771B	M	79TH STREET RAMP TO GARAGE	79TH STREET BOAT BASIN GARAGE		AR	P	21	S	5/14/2014	4.452	F	8,989	\$39,776,325	107		
226771C	M	GARAGE RAMP TO 79TH STREET	79TH STREET BOAT BASIN GARAGE		AR	P	21	S	5/12/2014	4.435	F	9,095	\$40,245,375	107		
226771D	M	SOUTHBOUND HHP RAMP TO 79TH STREET	79TH STREET BOAT BASIN GARAGE		AR	P	4	S	5/8/2014	4.403	F	2,601	\$11,509,425	107		
2267860	K	BROOKLYN BRIDGE APPROACH	STORAGE (SANDS STREET)		O		1	S	5/23/2014	4.344	F	6,490	\$28,718,250	302		
2268350	K	BROOKLYN PROMENADE	278I EASTBOUND (BOE)		A-PED	P	35	C	8/10/2014	3.552	F	46,184	\$204,364,200	302		
2268480	M	CHAMBERS STREET PEDESTRIAN BRIDGE	ROUTE 9A - WEST STREET		O-PED		10	C	5/30/2014	5.391	G	7,481	\$33,103,425	101		
2268497	K	278I WESTBOUND (B.Q.E.)	FURMAN STREET - 278I EASTBOUND		A		45	S	8/30/2013	4.357	F	86,406	\$382,346,550	302		
2268498	K	278I EASTBOUND (B.Q.E.)	278I WESTBOUND (BOE) - PROMENADE		A		69	S	11/26/2014	3.754	F	133,708	\$591,657,900	302		
2268507	K	278I WESTBOUND (B.Q.E.)	YORK STREET		A		6	S	7/2/2013	4.071	F	10,388	\$45,966,900	302		
2268508	K	278I EASTBOUND (B.Q.E.)	278I WESTBOUND (BOE) - BROOKLYN BRIDGE		A		11	S	7/5/2013	4.103	F	20,529	\$90,840,825	302		
2268517	K	278I WESTBOUND (B.Q.E.)	FURMAN STREET		A		7	S	7/1/2013	4.000	F	10,988	\$48,621,900	302		
2268518	K	278I EASTBOUND (B.Q.E.)	278I WESTBOUND (B.Q.E.)		A		5	S	7/5/2013	4.310	F	9,275	\$41,041,875	302		
2268650	M	FDR NORTHBOUND EAST 42ND STREET TO EAST 49TH STREET	EAST RIVER		A		119	S	10/17/2013	3.660	F	30,767	\$136,143,975	106		
2268760	M	PS-5 PEDESTRIAN BRIDGE	TENTH AVENUE		O-PED		5	C	12/9/2013	4.184	F	1,285	\$5,686,125	112		
2268770	O	SPRINGFIELD BOULEVARD	EQUESTRIAN PATH (ABANDONED)		O		1	S	5/9/2013	5.000	G	1,470	\$6,504,750	413		
2268920	R	AMBOY ROAD	LEMON CREEK		WO		1	S	3/10/2014	6.333	VG	1,310	\$5,796,750	503		
2268930	M	MORRIS STREET PEDESTRIAN BRIDGE	BROOKLYN-BATTERY TUNNEL PLAZA		A-PED		3	C	7/15/2013	3.875	F	1,842	\$8,150,850	101		
2269030	B	MATTHEWSON ROAD	MAC CRACKEN AVENUE		O		15	S	10/8/2014	4.175	F	14,880	\$65,844,000	205		
2269190	M	WEST 70TH STREET	AMTRAK	A	O		3	S	11/19/2013	5.542	G	17,258	\$76,366,650	107		
2269200	M	RIVERSIDE DRIVE SOUTH	AMTRAK	A	O		11	S	11/4/2013	6.069	VG	69,040	\$305,502,000	107		
2269210	M	WEST 68TH STREET	AMTRAK	A	O		3	S	11/5/2013	6.593	VG	5,382	\$23,815,350	107		
2269240	M	RIVERSIDE DRIVE	WEST 155TH STREET		O		1	S	4/25/2013	4.640	F	2,780	\$12,301,500	109	112	
2269600	K	ERSKINE STREET	BSHP		A		1	S	8/20/2014	5.938	G	8,258	\$36,541,650	305		
2269730	R	PARKING EXIT RAMP	SIRT	S	O	F	10	S	11/7/2014	6.097	VG	20,727	\$91,716,975	501		
2269740	R	BUS STATION NORTH	SIRT	S	O	F	12	S	11/2/2014	5.600	G	64,605	\$285,877,125	501		
2269750	R	BUS STATION SOUTH	SIRT	S	O	F	12	S	11/2/2014	5.280	G	154,688	\$684,494,400	501		
2269760	R	NORTH RAMP	SIRT	S	O	F	2	S	10/22/2014	6.431	VG	6,000	\$26,550,000	501		
2269770	R	BUS STATION ENTRANCE RAMP	SIRT	S	O	F	19	S	10/11/2013	5.611	G	39,333	\$174,048,525	501		
2269780	R	PARKING ENTRANCE RAMP	SIRT	S	O	F	3	S	11/7/2014	5.889	G	8,589	\$38,006,325	501		
2269790	R	BUS STATION EXIT RAMP	SIRT	S	O	F	7	S	11/4/2014	5.167	G	28,721	\$127,090,425	501		

**INVENTORY SORTED BY B.I.N.**

BIN	BORO	FEATURE CARRIED	FEATURE CROSSED	RAIL L RO	BRIDGE TYPE	OTHER OWNER	SPA NS	RT NG SR	Inspection Date	Condition Rating	VR BL RT	DECK AREA	REPLACEMENT COST	CD	CD2	CD3
2269820	M	EAST 81ST STREET PEDESTRIAN BRIDGE	FDR DRIVE NORTHBOUND		A-PED	P	3	C	6/8/2014	3.439	F	600	\$2,655,000	108		
2270030	B	EAST 156TH STREET	ACCESS TO HOUSING		O	ED	16	S	11/13/2014	3.493	F	49,696	\$219,904,800	204		
2270170	R	STATEN ISLAND FERRY PEDESTRIAN BRIDGE	PARKING LOT EXIT ROADWAY		O-PED	F	5	C	7/28/2014	5.583	G	2,917	\$12,907,725	501		
2270180	R	BOROUGH PLACE - RAMP A	STATEN ISLAND RAILWAY	S	O	F	1	S	5/9/2014	6.594	VG	1,870	\$8,274,750	501		
2270250	B	BROOKE AVENUE	CSX TRANS - PT MORRIS		O		1	S	7/11/2014	3.727	F	21,035	\$93,079,875	201		
2300130	O	ROCKAWAY BOULEVARD	HOOK CREEK		WO		3	S	7/15/2013	6.271	VG	18,302	\$80,986,350	413		
7703720	O	216TH STREET PEDESTRIAN BRIDGE	LIRR PORT WASH BR	L	O-PED		6	C	9/22/2014	3.111	F	960	\$4,248,000	411		
7705510	O	167TH STREET PEDESTRIAN BRIDGE	LIRR PORT WASH BR	L	O-PED		3	C	9/11/2014	4.000	F	840	\$3,717,000	407		
M00001	M	WEST 191ST STREET PEDESTRIAN TUNNEL	BROADWAY - IRT #1 SUBWAY		O-PED		1	C	12/9/2014	4.364	F	2,000	\$8,850,000	112		
M00003	M	HHP ON/OFF RMP-79TH STREET SOUTH SIDE	PEDESTRIAN PATH SOUTH OF 79TH STREET		A		1	C	6/6/2014	4.467	F	846	\$3,743,550	107		
M00004	M	HHP ON/OFF RAMP-79TH STREET NORTH SIDE	PEDESTRIAN PATH NORTH OF 79TH STREET		A		1	C	6/6/2014	4.667	F	846	\$3,743,550	107		
Q00002	O	BCIP	PATH OPPOSITE 88TH ROAD		A		1	C	6/11/2014	4.667	F	1,272	\$5,628,600	413		
788 OPEN BRIDGES							OPEN SPANS 4,339			OPEN SF		14,590,227	64,480,843,350	ALL		

**INVENTORY SORTED BY BORO AND COMMUNITY BOARD DISTRICT**

BIN	BORO	FEATURE CARRIED	FEATURE CROSSED	RAIL L RO	BRIDGE TYPE	OTHER OWNER	SPA NS	RT NG SR	Inspection Date	Condition Rating	VR BL RT	DECK AREA	REPLACEMENT COST	CD	CD2	CD3
224005B	B	TO BRUCKNER BOULEVARD	RELIEF		OR		4	S	10/3/2013	6.831	VG	19,990	\$88,455,750	201		
224006A	B	FROM BRUCKNER BOULEVARD	RELIEF		OR		5	S	9/14/2013	6.535	VG	14,037	\$62,113,725	201		
2241000	B	WESTCHESTER AVENUE	CSX PT MORRIS - (ABANDONED)	C	O		1	S	8/29/2014	4.660	F	1,740	\$7,699,500	201		
2241010	B	EAST 156TH STREET	CSX PT MORRIS - (ABANDONED)	C	O		1	S	5/9/2014	4.612	F	2,400	\$10,620,000	201		
2241040	B	THIRD AVENUE	CSX PT MORRIS - (ABANDONED)	C	O		1	S	7/3/2014	4.563	F	2,700	\$11,947,500	201	203	
2241050	B	EAST 149TH STREET / JACKSON AVENUE	CSX PT MORRIS - (ABANDONED)	C	O		1	S	5/12/2014	4.817	F	65,000	\$287,625,000	201		
2241060	B	ST. MARYS & CONCORD	CSX PT MORRIS - (ABANDONED)	C	O		1	S	7/2/2014	5.370	G	4,500	\$19,912,500	201		
2241070	B	WALES AVENUE	CSX PT MORRIS - (ABANDONED)	C	O		1	S	7/2/2014	6.467	VG	2,535	\$11,217,375	201		
2241080	B	SOUTHERN BOULEVARD	CSX PT MORRIS - (ABANDONED)	C	O		1	S	7/1/2014	4.093	F	3,900	\$17,257,500	201		
2241099	B	BRUCKNER BOULEVARD	CSX TRANS - PT MORRIS	C	O		1	S	7/16/2014	6.067	VG	6,700	\$29,647,500	201		
2241129	B	EAST 149TH STREET	AMTRAK - CSX	AC	O		2	S	11/17/2014	4.592	F	18,258	\$80,791,650	201	202	
2241550	B	EAST 144TH STREET	METRO NORTH RR HAR	M	O		2	S	8/30/2013	6.181	VG	8,290	\$36,683,250	201		
2241560	B	EAST 149TH STREET	METRO NORTH RR HAR	M	O		8	S	5/5/2014	4.625	F	27,900	\$123,457,500	201	204	
2242260	B	EAGLE AVENUE	EAST 161ST STREET		O		1	S	2/14/2014	5.117	G	2,800	\$12,390,000	201	203	
2242299	B	GRAND CONCOURSE	EAST 138TH STREET		O		1	S	6/11/2013	4.867	F	9,500	\$42,037,500	201		
2266540	B	278I	BRUCKNER BOULVARD		A		2	S	7/10/2013	4.435	F	32,900	\$145,582,500	201		
2270250	B	BROOKE AVENUE	CSX TRANS - PT MORRIS		O		1	S	7/11/2014	3.727	F	21,035	\$93,079,875	201		
2066671	B	BRUCKNER EXPRESSWAY SOUTHBOUND	BRONX RIVER		WA		3	S	10/15/2013	5.222	G	12,400	\$54,870,000	202	209	
2066672	B	BRUCKNER EXPRESSWAY NORTHBOUND	BRONX RIVER		WA		8	S	10/15/2013	4.418	F	22,300	\$98,677,500	202	209	
2075351	B	BRUCKNER EXPRESSWAY SOUTHBOUND	AMTRAK - CSX	AC	A		1	S	10/29/2014	5.698	G	11,600	\$51,330,000	202		
2075352	B	BRUCKNER EXPRESSWAY NORTHBOUND	AMTRAK - CSX	AC	A		1	S	10/30/2014	6.190	VG	10,900	\$48,232,500	202		
2076929	B	BRUCKNER EXPRESSWAY	CSX - HUNTS POINT	C	A		1	S	8/28/2013	4.567	F	3,800	\$16,815,000	202		
2240180	B	WESTCHESTER AVENUE	BRONX RIVER		WO		1	S	8/22/2013	4.667	F	5,476	\$24,231,300	202	209	
2241139	B	LEGGETT AVENUE	AMTRAK - CSX	AC	O		3	S	11/17/2014	4.620	F	41,551	\$183,863,175	202		
2241159	B	LONGWOOD AVENUE	AMTRAK - CSX	AC	O		2	S	11/18/2014	5.236	G	10,625	\$47,015,625	202		
2241169	B	LAFAYETTE AVENUE	AMTRAK - CSX	AC	O		1	S	11/18/2014	5.365	G	12,000	\$53,100,000	202		
2241170	B	TIFFANY STREET	AMTRAK - CSX	AC	O		1	S	11/18/2013	5.745	G	7,267	\$32,156,475	202		
2241180	B	BARRETTO STREET	AMTRAK - CSX	AC	O		1	S	11/18/2014	5.813	G	5,313	\$23,510,025	202		
2241190	B	HUNTS POINT AVENUE	AMTRAK - CSX	AC	O		1	S	11/20/2014	4.813	F	10,049	\$44,466,825	202		
2241200	B	FAILE STREET	AMTRAK - CSX	AC	O		1	S	11/19/2014	5.578	G	6,208	\$27,470,400	202		
2241210	B	BRYANT AVENUE	AMTRAK - CSX	AC	O		1	S	11/19/2014	3.186	F	5,300	\$23,452,500	202		
2241230	B	WESTCHESTER AVENUE	AMTRAK - CSX	AC	O		3	S	11/1/2014	5.778	G	15,600	\$69,030,000	202	209	
2241020	B	EAST 161ST STREET	CSX PT MORRIS - (ABANDONED)	C	O		1	S	3/20/2014	5.800	G	12,800	\$56,640,000	203		
2241030	B	EAST 163RD STREET	CSX PT MORRIS - (ABANDONED)	C	O		1	S	2/27/2014	4.611	F	3,200	\$14,160,000	203		
2241110	B	MELROSE AVENUE	CSX PT MORRIS - (ABANDONED)	C	O		8	S	8/20/2013	5.667	G	37,854	\$167,503,950	203		
2241620	B	EAST 162ND STREET	METRO NORTH RR HAR	M	O		1	S	4/26/2014	4.781	F	4,700	\$20,797,500	203		
2241630	B	EAST 165TH STREET	METRO NORTH RR HAR	M	O		1	S	4/26/2014	4.300	F	16,400	\$72,570,000	203		

**INVENTORY SORTED BY BORO AND COMMUNITY BOARD DISTRICT**

BIN	BORO	FEATURE CARRIED	FEATURE CROSSED	RAIL L RO	BRIDGE TYPE	OTHER OWNER	SPA NS	RT NG SR	Inspection Date	Condition Rating	VR BL RT	DECK AREA	REPLACEMENT COST	CD	CD2	CD3
2241650	B	EAST 167TH STREET	METRO NORTH RR HAR	M	O		1	S	4/21/2014	5.510	G	3,363	\$14,881,275	203		
2241660	B	EAST 168TH STREET	METRO NORTH RR HAR	M	O		1	S	4/22/2014	4.641	F	4,800	\$21,240,000	203		
2241670	B	EAST 169TH STREET	METRO NORTH RR HAR	M	O		1	S	4/22/2014	4.188	F	3,300	\$14,602,500	203		
2241680	B	EAST 170TH STREET	METRO NORTH RR HAR	M	O		1	S	4/22/2014	6.333	VG	3,150	\$13,938,750	203		
2241700	B	ST PAULS PLACE PEDESTRIAN BRIDGE	METRO NORTH RR HAR	M	O-PED		2	C	10/24/2014	4.887	F	888	\$3,929,400	203		
2241710	B	CLAREMONT PARKWAY	METRO NORTH RR HAR	M	O		1	S	4/17/2014	6.458	VG	5,950	\$26,328,750	203		
2241720	B	EAST 173RD STREET	METRO NORTH RR HAR	M	O		1	S	4/17/2014	4.875	F	3,000	\$13,275,000	203		
2076640	B	DEPOT PLACE	METRO NORTH RR HUD	CM	O		11	S	5/16/2014	4.653	F	26,566	\$117,554,550	204		
2241409	B	GRAND CONCOURSE	METRO NORTH RR HUD	MT	O		1	S	6/27/2014	3.766	F	14,300	\$63,277,500	204		
2241410	B	WALTON AVENUE	METRO NORTH RR HUD	M	O		1	S	5/5/2014	4.406	F	3,600	\$15,930,000	204		
2241420	B	GERARD AVENUE	METRO NORTH RR HUD	M	O		1	S	5/5/2014	5.422	G	5,063	\$22,403,775	204		
2241430	B	RIVER AVENUE	METRO NORTH RR HUD	M	O		1	S	8/30/2013	6.156	VG	5,040	\$22,302,000	204		
2241590	B	CONCOURSE VILLAGE AVENUE	METRO NORTH RR HAR	M	O		1	S	4/19/2014	3.969	F	12,077	\$53,440,725	204		
2241600	B	EAST 158TH STREET	METRO NORTH RR HAR	M	O		1	S	8/31/2013	5.200	G	3,400	\$15,045,000	204		
2241610	B	EAST 161ST STREET	METRO NORTH RR HAR	M	O		1	S	9/24/2013	5.050	G	6,600	\$29,205,000	204	203	
2242259	B	GRAND CONCOURSE	EAST 161ST STREET		O		1	S	6/30/2014	6.333	VG	27,017	\$119,550,225	204		
2242280	B	GRAND CONCOURSE	EAST 167TH STREET		O		2	S	7/2/2014	4.754	F	42,900	\$189,832,500	204		
2242300	B	GRAND CONCOURSE	EAST 170TH STREET		O		2	S	3/19/2014	4.754	F	39,300	\$173,902,500	204		
2242319	B	GRAND CONCOURSE	EAST 174TH STREET	T	O		1	S	3/18/2014	4.067	F	14,900	\$65,932,500	204		
2270030	B	EAST 156TH STREET	ACCESS TO HOUSING		O	ED	16	S	11/13/2014	3.493	F	49,696	\$219,904,800	204		
2241460	B	WEST TREMONT AVENUE	METRO NORTH RR HUD	M	O		8	S	6/12/2014	3.776	F	12,900	\$57,082,500	205		
2242329	B	GRAND CONCOURSE	EAST 175TH STREET	T	O		1	S	6/11/2014	4.833	F	11,900	\$52,657,500	205		
2242330	B	GRAND CONCOURSE	EAST TREMONT AVENUE		O		1	S	9/12/2013	5.883	G	11,700	\$51,772,500	205		
2242350	B	EAST FORDHAM ROAD	GRAND CONCOURSE		O		1	S	3/7/2014	4.833	F	10,300	\$45,577,500	205	207	
2242360	B	GRAND CONCOURSE	BURNSIDE AVENUE		O		2	S	6/30/2014	4.265	F	8,400	\$37,170,000	205		
2269030	B	MATTHEWSON ROAD	MAC CRACKEN AVENUE		O		15	S	10/8/2014	4.175	F	14,880	\$65,844,000	205		
2241269	B	EAST 177TH STREET	AMTRAK - CSX	AC	O		3	S	7/29/2014	5.278	G	16,606	\$73,481,550	206		
2241740	B	EAST 175TH STREET	METRO NORTH RR HAR	M	O		1	S	4/14/2014	3.875	F	3,600	\$15,930,000	206		
2241760	B	EAST TREMONT AVENUE	METRO NORTH RR HAR	M	O		1	S	8/29/2013	6.450	VG	8,424	\$37,276,200	206		
2241770	B	EAST 178TH STREET PEDESTRIAN BRIDGE	METRO NORTH RR HAR	M	O-PED		1	C	10/23/2014	4.921	F	731	\$3,234,675	206		
2241780	B	EAST 179TH STREET PEDESTRIAN BRIDGE	METRO NORTH RR HAR	M	O-PED		6	C	10/22/2014	5.311	G	1,011	\$4,473,675	206		
2241790	B	EAST 180TH STREET	METRO NORTH RR HAR	M	O		1	S	4/24/2014	3.844	F	5,000	\$22,125,000	206		
2241800	B	EAST 183TH STREET	METRO NORTH RR HAR	M	O		1	S	4/24/2014	3.953	F	4,080	\$18,054,000	206		
2241810	B	EAST 188TH STREET	METRO NORTH RR HAR	M	O		1	S	4/16/2014	4.094	F	5,300	\$23,452,500	206		
2241820	B	EAST 187TH STREET	METRO NORTH RR HAR	M	O		1	S	4/23/2014	4.344	F	3,800	\$16,815,000	206		
2241839	B	EAST 189TH STREET	METRO NORTH RR HAR	M	O		1	S	8/28/2013	6.133	VG	43,157	\$190,969,725	206	207	
2242030	B	CROTONA AVENUE	BRONX PELHAM PARKWAY		O		2	S	1/29/2014	5.447	G	7,600	\$33,630,000	206		

**INVENTORY SORTED BY BORO AND COMMUNITY BOARD DISTRICT**

BIN	BORO	FEATURE CARRIED	FEATURE CROSSED	RAIL L RO	BRIDGE TYPE	OTHER OWNER	SPA NS	RT NG SR	Inspection Date	Condition Rating	VR BL RT	DECK AREA	REPLACEMENT COST	CD	CD2	CD3
2242149	B	EAST TREMONT AVENUE	BRONX RIVER		WO		2	S	5/7/2014	4.361	F	12,900	\$57,082,500	206		
2242400	B	EAST 180TH STREET	BRONX RIVER		WO		1	S	9/26/2014	4.810	F	4,500	\$19,912,500	206	227	
2230270	B	MOSHOLU PARKWAY	WEBSTER AVENUE		A		1	S	5/21/2013	5.203	G	8,480	\$37,524,000	207		
2230287	B	JEROME AVENUE	MOSHOLU PARKWAY	T	A		3	S	5/22/2013	4.816	F	11,800	\$52,215,000	207		
2241470	B	WEST FORDHAM ROAD	METRO NORTH RR HUD	M	O		4	S	9/9/2013	5.694	G	16,052	\$71,030,100	207		
2241489	B	WEST 225TH STREET	CSX TRASP - PUTNAM	C	O		2	S	8/28/2014	5.269	G	10,900	\$48,232,500	207	208	
2241930	B	BEDFORD PARK BOULEVARD	NYCTA IND YARDS	T	O		4	S	10/31/2014	5.347	G	46,300	\$204,877,500	207		
2241940	B	WEST 205TH STREET	NYCTA IND YARDS	T	O		4	S	10/31/2014	5.514	G	32,508	\$143,847,900	207		
2242340	B	GRAND CONCOURSE	EAST KINGSBRIDGE		O		2	S	6/12/2014	4.714	F	18,285	\$80,911,125	207		
2242370	B	GRAND CONCOURSE	BEDFORD PARK BOULEVARD		O		1	S	2/21/2014	4.373	F	8,418	\$37,249,650	207		
2242380	B	GRAND CONCOURSE	EAST 204TH STREET		O		1	S	9/11/2013	5.484	G	9,272	\$41,028,600	207		
2229440	B	HHP	KAPPOCK ST		A		1	S	7/18/2013	4.931	F	3,900	\$17,257,500	208		
2229450	B	WEST 232ND STREET	HHP		A		2	S	7/22/2013	5.026	G	4,900	\$21,682,500	208		
2229460	B	WEST 236TH STREET PEDESTRIAN BRIDGE	HHP		A-PED		3	C	7/7/2014	4.443	F	2,500	\$11,062,500	208		
2229470	B	WEST 239TH STREET	HHP		A		2	S	6/3/2013	5.053	G	6,100	\$26,992,500	208		
2229480	B	MANHATTAN COLLEGE PARKWAY	HHP		A		3	S	6/3/2013	5.053	G	6,200	\$27,435,000	208		
2229490	B	WEST 246TH STREET	HHP		A		2	S	6/3/2013	4.868	F	5,600	\$24,780,000	208		
2229500	B	WEST 252ND STREET	HHP		A		2	S	1/27/2014	5.372	G	4,500	\$19,912,500	208		
2229510	B	RIVERDALE AVENUE	HHP		A		2	S	7/22/2013	5.079	G	5,200	\$23,010,000	208		
2229520	B	FIELDSTON ROAD	HHP		A		1	S	7/29/2013	4.900	F	6,600	\$29,205,000	208		
2229530	B	HHP	BROADWAY		A		1	S	7/29/2013	4.574	F	7,500	\$33,187,500	208		
2241490	B	WEST 230TH STREET	CSX PUTNAM (ABANDONED)		O		1	S	5/8/2013	5.625	G	5,600	\$24,780,000	208		
2241509	B	WEST 231ST STREET	CSX PUTNAM (ABANDONED)		O		1	S	7/3/2014	4.745	F	4,723	\$20,899,275	208		
2241510	B	WEST 233RD STREET	CSX PUTNAM (ABANDONED)		O		1	S	5/8/2013	5.275	G	3,760	\$16,638,000	208		
2241520	B	WEST 234TH STREET	CSX PUTNAM (ABANDONED)		O		1	S	5/8/2013	5.176	G	3,770	\$16,682,250	208		
1066510	B	BRUCKNER EXPRESSWAY SERVICE ROAD	WESTCHESTER CREEK		WMA		17	S	9/17/2014	3.226	F	39,400	\$174,345,000	209		
2066720	B	EAST 174TH STREET	SHERIDAN EXPRESSWAY/AMTRAK	A	A		13	S	7/29/2014	3.986	F	35,573	\$157,410,525	209	203	
206672A	B	174TH STREET-NORTH PEDESTRIAN BRIDGE	895I - SHERIDAN EXPRESSWAY		A-PED		4	C	4/1/2014	4.667	F	1,800	\$7,965,000	209		
206672B	B	174TH STREET-SOUTH PEDESTRIAN BRIDGE	895I - SHERIDAN EXPRESSWAY		A-PED		4	C	4/17/2014	4.750	F	1,900	\$8,407,500	209		
2241270	B	EAST TREMONT AVENUE	AMTRAK - CSX	AC	O		2	S	10/31/2014	5.153	G	22,300	\$98,677,500	209	211	
2075820	B	EAST TREMONT AVENUE	HUTCHINSON RIVER PARKWAY		A		2	S	11/21/2013	4.444	F	10,200	\$45,135,000	210		
2075837	B	WESTCHESTER AVENUE	HUTCHINSON RIVER PARKWAY		A		2	S	2/27/2014	4.097	F	15,858	\$70,171,650	210	211	
2075849	B	BRONX PELHAM PARKWAY	HUTCHINSON RIVER PARKWAY		A		2	S	5/8/2014	3.974	F	17,600	\$77,880,000	210	211	
2075859	B	HUTCHINSON RIVER PARKWAY	HUTCHINSON RIVER		WMA		7	S	11/7/2014	4.828	F	60,500	\$267,712,500	210	228	
2076109	B	BE NORTHBOUND SERVICE ROAD	HUTCHINSON RIVER PARKWAY		A		2	S	8/15/2013	5.105	G	7,800	\$34,515,000	210		
2076129	B	BE SOUTHBOUND SERVICE ROAD	HUTCHINSON RIVER PARKWAY		A		2	S	1/16/2014	5.079	G	7,100	\$31,417,500	210		
2241959	B	HUTCHINSON RIVER PARKWAY	AMTRAK - CSX	AC	O		1	S	10/9/2014	5.542	G	15,444	\$68,339,700	210	211	

**INVENTORY SORTED BY BORO AND COMMUNITY BOARD DISTRICT**

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2229560	B	BRONX PELHAM PARKWAY	AMTRAK - CSX	AC	A		3	S	11/12/2014	4.486	F	24,591	\$108,815,175	211		
2241329	B	WHITE PLAINS ROAD	AMTRAK - CSX	AC	O		1	S	10/28/2014	4.781	F	6,900	\$30,532,500	211		
2241330	B	UNIONPORT ROAD	AMTRAK - CSX	AC	O		1	S	10/28/2014	4.688	F	7,631	\$33,767,175	211		
2241369	B	WILLIAMSBRIDGE ROAD	AMTRAK - CSX	AC	O		2	S	10/29/2014	4.985	F	6,510	\$28,806,750	211		
2241910	B	GUN HILL ROAD	NYCTA-DYRE AVENUE LINE	T	O		1	S	10/28/2014	5.516	G	7,500	\$33,187,500	211	212	
1067150	B	NEREID AVE (EAST 240TH STREET)	BRONX RIVER PARKWAY	M	O		10	S	10/19/2013	4.632	F	57,750	\$255,543,750	212		
2229579	B	BOSTON ROAD	HUTCHINSON RIVER		WO		14	S	5/9/2014	4.042	F	95,700	\$423,472,500	212		
2241860	B	GUN HILL ROD	METRO NORTH RR HAR	M	O		1	S	4/29/2014	6.531	VG	9,128	\$40,391,400	212		
2241870	B	EAST 233RD STREET	METRO NORTH RR HAR	M	O		1	S	4/28/2014	4.902	F	7,664	\$33,913,200	212	207	
2241890	B	EAST 241ST STREET	BRP, METRO NORTH HAR	M	WO		28	S	11/30/2013	4.417	F	49,500	\$219,037,500	212		
2241900	B	EASTCHESTER ROAD	NYCTA-DYRE AVENUE LINE	T	O		3	S	10/28/2014	4.472	F	13,500	\$59,737,500	212		
2242071	B	BRONX BOULEVARD SOUTHBOUND	BRONX RIVER		WO		1	S	3/27/2014	4.367	F	1,800	\$7,965,000	212		
2242072	B	BRONX BOULEVARD NORTHBOUND	BRONX RIVER		WO		1	S	3/27/2014	4.867	F	1,800	\$7,965,000	212		
2242081	B	BRONX BOULEVARD SOUTHBOUND	BRONX RIVER		WO		1	S	3/26/2014	4.300	F	2,800	\$12,390,000	212		
2242082	B	BRONX BOULEVARD NORTHBOUND	BRONX RIVER		WO		1	S	3/26/2014	4.467	F	2,800	\$12,390,000	212		
2242099	B	PARK ROAD (204TH STREET)	BRONX RIVER		WO		1	S	5/6/2014	4.655	F	4,700	\$20,797,500	212		
2242430	B	GUN HILL ROAD	BRONX BOULEVARD		O		4	S	2/20/2014	4.947	F	9,400	\$41,595,000	212		
2242440	B	GUN HILL ROAD	BRONX RIVER		WO		1	S	1/14/2014	5.300	G	8,700	\$38,497,500	212		
2242459	B	EAST 233RD STREET	BRONX RIVER		WO		1	S	2/26/2014	4.233	F	7,000	\$30,975,000	212		
2242460	B	EAST 233RD STREET	ENTRANCE ROAD BRONX RIVER PARKWAY		O		1	S	1/7/2014	4.900	F	5,300	\$23,452,500	212		
2229540	B	VAN CORTLANDT PARK	HHP		A-PED	P	2	C	7/14/2014	4.759	F	3,900	\$17,257,500	226		
2229550	B	VAN CORTLANDT EQUESTRIAN	HHP		A-PED	P	2	C	7/16/2014	4.440	F	2,100	\$9,292,500	226		
2230290	B	MOSHOLU PARKWAY	EQUESTRIAN PATH		A		1	S	1/13/2014	4.310	F	4,300	\$19,027,500	226		
2230300	B	MOSHOLU PARKWAY	CONRAIL (ABANDONED)	C	A		1	S	7/31/2014	4.271	F	4,600	\$20,355,000	226		
2230310	B	MOSHOLU PARKWAY	SOUTHBOUND RAMP TO HHP		A		2	S	9/16/2013	4.919	F	7,400	\$32,745,000	226		
2065629	B	BRONX RIVER PARKWAY	BOSTON ROAD - BX ZOO		A		1	S	8/14/2013	5.138	G	6,300	\$27,877,500	227		
2230250	B	MOSHOLU PARKWAY	BRONX RIVER		WA		5	S	1/8/2014	4.263	F	16,300	\$72,127,500	227		
2230260	B	MOSHOLU PARKWAY	METRO NORTH	M	A		1	S	4/30/2014	5.391	G	8,880	\$39,294,000	227	207	
2241259	B	204TH STREET PEDESTRIAN BRIDGE	METRO NORTH RR HAR	M	O-PED	P	1	C	10/20/2014	3.845	F	4,700	\$20,797,500	227	207	
2241840	B	BEDFORD PARK BOULEVARD	METRO NORTH RR HAR	M	O		1	S	4/28/2014	4.656	F	6,400	\$28,320,000	227	207	
2242010	B	EAST FORDHAM ROAD	BRONX RIVER		WO		1	S	3/26/2014	5.467	G	9,200	\$40,710,000	227		
2242029	B	SOUTHERN BOULEVARD	EAST FORDHAM ROAD		O		2	S	1/29/2014	4.605	F	12,900	\$57,082,500	227		
2242100	B	BOTANICAL GARDEN ROAD	TWIN LAKES		WO	P	1	S	2/26/2014	4.833	F	2,200	\$9,735,000	227		
2242110	B	BOSTON ROAD	BRONX RIVER		WO		1	S	2/26/2014	4.227	F	6,200	\$27,435,000	227		
2242120	B	FOOTBRIDGE NORTH OF ROUTE 1	BRONX RIVER		WO-PED	P	1	C	8/7/2013	3.583	F	1,900	\$8,407,500	227		
2242210	B	MAGNOLIA WAY	BRONX RIVER		WO	P	3	S	5/6/2014	4.763	F	6,200	\$27,435,000	227		
2242220	B	SNUFF MILL ROAD	BRONX RIVER		WO	P	2	S	1/9/2014	4.395	F	4,800	\$21,240,000	227		

**INVENTORY SORTED BY BORO AND COMMUNITY BOARD DISTRICT**

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2240200	B	SHORE ROAD	HUTCHINSON RIVER		WMO		7	S	5/30/2014	4.537	F	43,576	\$192,823,800	228		
2240210	B	CITY ISLAND ROAD	EASTCHESTER BAY		WO		7	S	10/16/2014	3.389	F	19,915	\$88,123,875	228		
2241380	B	PELHAM BAY PARK EQUESTRIAN	AMTRAK - CSX	AC	O-PED	P	1	C	7/24/2013	3.339	F	7,300	\$32,302,500	228		
2241390	B	SHORE ROAD CIRCLE	AMTRAK - CSX	AC	O		1	S	7/21/2014	7.000	VG	8,067	\$35,696,475	228		
1240090	BM	MACCOMBS DAM BRIDGE	HARLEM RIVER	M	WMO		52	S	12/13/2013	3.986	F	220,000	\$973,500,000	110	204	
2240089	BM	145TH STREET BRIDGE	HARLEM RIVER		WMO		8	S	8/15/2013	6.278	VG	56,700	\$250,897,500	110	204	201
2240059	BM	WILLIS AVENUE	HARLEM RIVER		WMO		15	S	11/12/2014	6.778	VG	171,105	\$757,139,625	111	201	
2240069	BM	THIRD AVENUE BRIDGE	HARLEM RIVER		WMO		14	S	9/4/2014	5.789	G	100,232	\$443,526,600	111	201	
2240079	BM	MADISON AVENUE BRIDGE	HARLEM RIVER		WMO		21	S	9/17/2014	4.861	F	80,000	\$354,000,000	111	201	
2066919	BM	WASHINGTON BRIDGE	HARLEM RIVER	M	WO		9	S	11/29/2012	4.642	F	128,339	\$567,900,075	112	205	204
2240120	BM	WEST 207TH STREET/WEST FORDHAM ROAD	HARLEM RIVER		WMO		5	S	7/31/2014	5.000	G	31,784	\$140,644,200	112	207	
2240137	BM	BROADWAY BRIDGE	HARLEM RIVER	TM	WMO		3	S	12/17/2014	3.806	F	46,848	\$207,302,400	112	207	208
2240138	BM	NYCTA IRT	HARLEM RIVER/BROADWAY	TM	WMO		3	S	10/9/2013	4.720	F	19,520	\$86,376,000	112	207	208
2246580	BM	HIGH BRIDGE PEDESTRIAN OVERPASS	I87 - HARLEM RIVER	M	WA-PED	P	11	P	8/12/2002	3.759	F	34,100	\$150,892,500	112	204	
2240290	K	METROPOLITAN AVENUE	ENGLISH KILLS		WMO		5	S	7/9/2013	5.444	G	10,550	\$46,683,750	301		
2230410	K	278I EASTBOUND (B.Q.E.)	WASHINGTON STREET		A		1	S	7/16/2014	4.500	F	2,500	\$11,062,500	302		
2230420	K	278I WESTBOUND (B.Q.E.)	WASHINGTON STREET		A		1	S	7/16/2014	5.047	G	2,500	\$11,062,500	302		
2230430	K	278I (B.Q.E.) RAMP TO BROOKLYN BRIDGE	PROSPECT STREET		A		1	S	1/6/2014	5.000	G	1,100	\$4,867,500	302		
2230440	K	278I WESTBOUND (B.Q.E.)	ADAMS STREET		A		1	S	1/15/2014	5.200	G	2,700	\$11,947,500	302		
2230450	K	278I EASTBOUND (B.Q.E.)	ADAMS STREET		A		1	S	1/15/2014	4.933	F	2,500	\$11,062,500	302		
2230460	K	278I (B.Q.E.)	PEARL STREET		A		1	S	1/15/2014	5.467	G	4,500	\$19,912,500	302		
2230470	K	278I (B.Q.E.)	JAY STREET		A		1	S	1/15/2014	4.833	F	5,100	\$22,567,500	302		
2230480	K	278I (B.Q.E.)	PROSPECT STREET		A		1	S	2/21/2014	4.852	F	8,400	\$37,170,000	302		
2230490	K	278I (B.Q.E.)	SANDS STREET		A		1	S	2/27/2014	5.019	G	12,600	\$55,755,000	302		
2230500	K	278I (B.Q.E.)	RAMP TO BOE EASTBOUND		A		1	S	2/10/2014	4.967	F	1,300	\$5,752,500	302		
2230510	K	278I (B.Q.E.)	NASSAU STREET		A		6	S	7/3/2014	5.169	G	51,200	\$226,560,000	302		
2230857	K	278I WESTBOUND (B.Q.E.)	JORALEMON STREET		A		1	S	3/11/2014	5.000	G	2,100	\$9,292,500	302		
2230858	K	278I EASTBOUND (B.Q.E.)	JORALEMON STREET / BOE WESTBOUND		A		1	S	11/5/2013	4.619	F	5,900	\$26,107,500	302		
2230870	K	COLUMBIA HEIGHTS	278I (B.Q.E.)		A		1	S	8/7/2014	4.450	F	16,500	\$73,012,500	302		
2230887	K	278I WESTBOUND (B.Q.E.)	CADMAN PLAZA		A		2	S	7/25/2014	4.403	F	4,500	\$19,912,500	302		
2230888	K	278I EASTBOUND (B.Q.E.)	CADMAN PLAZA / 278I WESTBOUND		A		2	S	7/28/2014	5.263	G	4,500	\$19,912,500	302		
2243280	K	6TH AVENUE	LIRR ATLANTIC AVENUE	L	O		9	S	9/5/2014	5.431	G	12,276	\$54,321,300	302		
2243290	K	CARLTON AVENUE	LIRR ATLANTIC AVENUE	L	O		4	S	7/29/2013	6.806	VG	15,400	\$68,145,000	302		
2244440	K	FLEET WALK PEDESTRIAN BRIDGE	NAVY STREET		O-PED		1	C	8/21/2014	3.958	F	620	\$2,743,500	302		
2267860	K	BROOKLYN BRIDGE APPROACH	STORAGE (SANDS STREET)		O		1	S	5/23/2014	4.344	F	6,490	\$28,718,250	302		
2268350	K	BROOKLYN PROMENADE	278I EASTBOUND (BOE)		A-PED	P	35	C	8/10/2014	3.552	F	46,184	\$204,364,200	302		
2268497	K	278I WESTBOUND (B.Q.E.)	FURMAN STREET - 278I EASTBOUND		A		45	S	8/30/2013	4.357	F	86,406	\$382,346,550	302		

**INVENTORY SORTED BY BORO AND COMMUNITY BOARD DISTRICT**

BIN	BORO	FEATURE CARRIED	FEATURE CROSSED	RAIL RO	BRIDGE TYPE	OTHER OWNER	SPANS	RT NG SR	Inspection Date	Condition Rating	VR BL RT	DECK AREA	REPLACEMENT COST	CD	CD2	CD3
2268498	K	278I EASTBOUND (B.Q.E.)	278I WESTBOUND (BOE) - PROMENADE		A		69	S	11/26/2014	3.754	F	133,708	\$591,657,900	302		
2268507	K	278I WESTBOUND (B.Q.E.)	YORK STREET		A		6	S	7/2/2013	4.071	F	10,388	\$45,966,900	302		
2268508	K	278I EASTBOUND (B.Q.E.)	278I WESTBOUND (BOE) - BROOKLYN BRIDGE		A		11	S	7/5/2013	4.103	F	20,529	\$90,840,825	302		
2268517	K	278I WESTBOUND (B.Q.E.)	FURMAN STREET		A		7	S	7/1/2013	4.000	F	10,988	\$48,621,900	302		
2268518	K	278I EASTBOUND (B.Q.E.)	278I WESTBOUND (B.Q.E.)		A		5	S	7/5/2013	4.310	F	9,275	\$41,041,875	302		
2230000	K	HIGHLAND BOULEVARD EASTBOUND	JACKIE ROBINSON PARKWAY		A		1	S	3/17/2014	4.724	F	4,900	\$21,682,500	305		
2230010	K	HIGHLAND BOULEVARD WESTBOUND	JACKIE ROBINSON PARKWAY		A		1	S	2/25/2014	4.767	F	3,500	\$15,487,500	305		
2230020	K	HIGHLAND BOULEVARD WESTBOUND	JACKIE ROBINSON PARKWAY EASTBOUND ENTRANCE RAMP		A		2	S	3/11/2014	4.974	F	4,700	\$20,797,500	305		
2230220	K	HIGHLAND BOULEVARD NORTHBOUND	VERMONT AVENUE		A		1	S	6/5/2013	5.857	G	3,995	\$17,677,875	305		
2244170	K	ATLANTIC AVENUE SERVICE ROAD EASTBOUND	EAST NEW YORK AVENUE		O		2	S	8/5/2013	5.474	G	3,192	\$14,124,600	305		
2244180	K	ATLANTIC AVENUE SERVICE ROAD WESTBOUND	EAST NEW YORK AVENUE		O		2	S	8/5/2013	5.105	G	5,600	\$24,780,000	305		
2244460	K	CONDUIT BOULEVARD NORTHBOUND	ATLANTIC AVENUE EASTBOUND		O		1	S	10/10/2014	4.833	F	3,800	\$16,815,000	305		
2269600	K	ERSKINE STREET	BSHP		A		1	S	8/20/2014	5.938	G	8,258	\$36,541,650	305		
2230350	K	SUMMIT STREET PEDESTRIAN BRIDGE	278I (B.Q.E.)		A-PED		2	S	4/4/2014	4.557	F	1,400	\$6,195,000	306		
2230360	K	UNION STREET	278I (B.Q.E.)		A		2	S	3/19/2014	4.236	F	5,000	\$22,125,000	306		
2230370	K	SACKETT STREET	278I (B.Q.E.)		A		2	S	3/19/2014	4.500	F	5,000	\$22,125,000	306		
2230380	K	KANE STREET	278I (B.Q.E.)		A		2	S	3/27/2014	4.153	F	5,000	\$22,125,000	306		
2230390	K	CONGRESS STREET	278I (B.Q.E.)		A		2	S	3/27/2014	6.029	VG	5,000	\$22,125,000	306		
2240232	K	HAMILTON AVENUE BRIDGE	GOWANUS CANAL		WMO		3	S	8/13/2013	5.361	G	8,611	\$38,103,675	306		
2240240	K	NINTH STREET BRIDGE	GOWANUS CANAL		WMO		3	S	6/25/2013	6.065	VG	5,772	\$25,541,100	306		
2240250	K	THIRD STREET	GOWANUS CANAL		WMO		5	S	5/31/2013	4.722	F	4,900	\$21,682,500	306		
2240260	K	CARROLL STREET	GOWANUS CANAL		WMO		2	S	10/13/2014	5.208	G	3,000	\$13,275,000	306		
2240270	K	UNION STREET	GOWANUS CANAL		WMO		5	S	8/15/2014	4.111	F	4,900	\$21,682,500	306		
2240310	K	THIRD AVENUE	GOWANUS CANAL		WO		1	S	6/6/2013	6.633	VG	3,200	\$14,160,000	306		
2066100	K	5TH AVENUE	27 X PROSPECT EXPRESSWAY		A		1	S	4/22/2014	5.063	G	8,800	\$38,940,000	307		
2240231	K	HAMILTON AVENUE BRIDGE	GOWANUS CANAL		WMO		3	S	9/9/2014	5.472	G	7,300	\$32,302,500	307	306	
2243839	K	4TH AVENUE	NYCTA BMT TRACKS	T	O		1	S	8/20/2013	6.250	VG	4,440	\$19,647,000	307		
2243920	K	7TH AVENUE	NYCTA BMT YARD	T	O		2	S	6/30/2014	6.042	VG	4,700	\$20,797,500	307		
2244470	K	SEELEY STREET	PROSPECT AVENUE		O		1	S	7/25/2014	4.033	F	8,482	\$37,532,850	307		
2244480	K	5TH AVENUE	GREENWOOD CEMETERY		O		1	S	9/25/2013	5.333	G	3,600	\$15,930,000	307		
2243170	K	STERLING PLACE	FRANKLIN SHUTTLE	T	O		1	S	8/23/2013	6.438	VG	2,300	\$10,177,500	308		
2243180	K	ST JOHNS PLACE	FRANKLIN SHUTTLE	T	O		1	S	8/23/2013	6.656	VG	2,300	\$10,177,500	308		
2243190	K	LINCOLN PLACE	FRANKLIN SHUTTLE	T	O		1	S	6/26/2014	6.672	VG	2,460	\$10,885,500	308		
2243200	K	UNION STREET	FRANKLIN SHUTTLE	T	O		2	S	6/25/2014	4.913	F	4,100	\$18,142,500	309		
2243210	K	PRESIDENT STREET	FRANKLIN SHUTTLE	T	O		2	S	6/25/2014	5.078	G	2,500	\$11,062,500	309		
2243220	K	CARROLL STREET PEDESTRIAN BRIDGE	FRANKLIN SHUTTLE	T	O-PED		3	C	4/29/2014	5.789	G	600	\$2,655,000	309		
2243230	K	CROWN STREET	FRANKLIN SHUTTLE	T	O		3	S	8/8/2013	5.014	G	4,060	\$17,965,500	309		



**INVENTORY SORTED BY BORO AND COMMUNITY BOARD DISTRICT**

BIN	BORO	FEATURE CARRIED	FEATURE CROSSED	RAIL RO	BRIDGE TYPE	OTHER OWNER	SPANS	RT NG SR	Inspection Date	Condition Rating	VR BL RT	DECK AREA	REPLACEMENT COST	CD	CD2	CD3
2243240	K	MONTGOMERY STREET	FRANKLIN SHUTTLE	T	O		1	S	8/8/2013	5.843	G	2,240	\$9,912,000	309		
2243250	K	WASHINGTON AVENUE	FRANKLIN SHUTTLE	T	O		1	S	6/24/2014	6.000	G	3,657	\$16,182,225	309	355	
2243260	K	FLATBUSH AVENUE	FRANKLIN SHUTTLE	T	O		2	S	6/23/2014	4.961	F	11,300	\$50,002,500	309		
2243279	K	EASTERN PARKWAY	FRANKLIN SHUTTLE	T	O		1	S	6/27/2014	4.833	F	7,700	\$34,072,500	309	308	
2231249	K	BSHP	BAY RIDGE AVENUE		A		1	S	3/26/2014	3.625	F	4,900	\$21,682,500	310		
2231250	K	81ST STREET PEDESTRIAN BRIDGE	BSHP		A-PED	P	5	C	3/25/2014	4.761	F	3,100	\$13,717,500	310		
2231260	K	92ND STREET PEDESTRIAN BRIDGE	BSHP		A-PED	P	6	C	8/6/2014	3.541	F	3,000	\$13,275,000	310		
2231270	K	4TH AVENUE	BSHP		A		2	S	3/21/2014	4.763	F	6,100	\$26,992,500	310		
2243310	K	2ND AVENUE	LIRR BAY RIDGE	N	O		2	S	10/7/2014	6.208	VG	17,751	\$78,548,175	310		
2243320	K	3RD AVENUE	LIRR BAY RIDGE	N	O		4	S	9/17/2013	4.917	F	17,230	\$76,242,750	310		
2243330	K	4TH AVENUE	LIRR BAY RIDGE	NT	O		4	S	8/30/2013	5.597	G	13,668	\$60,480,900	310		
2243580	K	5TH AVENUE	LIRR & SEA BEACH	NT	O		4	S	10/27/2014	3.882	F	12,395	\$54,847,875	310		
2243590	K	6TH AVENUE	LIRR & SEA BEACH	NT	O		2	S	7/16/2013	6.056	VG	14,382	\$63,640,350	310		
2243600	K	7TH AVENUE	LIRR & SEA BEACH	NT	O		7	S	10/22/2014	4.806	F	18,628	\$82,428,900	310		
2243610	K	8TH AVENUE	LIRR & SEA BEACH	NT	O		2	S	7/15/2013	6.181	VG	10,834	\$47,940,450	310		
2243620	K	FORT HAMILTON PARKWAY	LIRR & SEA BEACH	NT	O		3	S	6/19/2014	4.729	F	14,800	\$65,490,000	310		
2243630	K	11TH AVENUE	LIRR & SEA BEACH	NT	O		5	S	7/1/2014	5.985	G	9,700	\$42,922,500	310		
2243640	K	13TH AVENUE	LIRR & SEA BEACH	NT	O		5	S	7/15/2013	4.972	F	16,000	\$70,800,000	310		
2244150	K	RIDGE BOULEVARD	SHORE ROAD DRIVE		O		1	S	6/10/2013	6.333	VG	4,350	\$19,248,750	310		
2244160	K	3RD AVENUE	SHORE ROAD DRIVE		O		1	S	6/14/2013	6.727	VG	4,360	\$19,293,000	310		
2231290	K	BAY 8TH STREET	BSHP		A		1	S	6/11/2013	5.921	G	4,950	\$21,903,750	311		
2231300	K	17TH AVENUE PEDESTRIAN BRIDGE	BSHP		A-PED	P	1	C	8/14/2014	3.667	F	2,100	\$9,292,500	311		
2231319	K	BSHP	BAY PARKWAY		A		1	S	6/19/2014	4.533	F	7,200	\$31,860,000	311		
2243340	K	15TH AVENUE	LIRR BAY RIDGE	N	O		1	S	10/3/2014	4.872	F	3,614	\$15,991,950	311		
2243350	K	60TH STREET	LIRR BAY RIDGE	N	O		1	S	9/4/2013	6.133	VG	3,900	\$17,257,500	311		
2243360	K	16TH AVENUE	LIRR BAY RIDGE	N	O		1	S	10/3/2014	5.350	G	4,345	\$19,226,625	311		
2243650	K	14TH AVENUE	LIRR BAY RIDGE	N	O		1	S	10/3/2014	6.167	VG	4,720	\$20,886,000	311		
2243660	K	NEW UTRECHT AVENUE	LIRR BAY RIDGE	N	O		1	S	10/3/2014	5.883	G	2,350	\$10,398,750	311		
2243670	K	15TH AVENUE	BMT SEA BEACH	T	O		4	S	6/24/2013	6.136	VG	16,020	\$70,888,500	311		
2243680	K	16TH AVENUE	BMT SEA BEACH	T	O		3	S	6/6/2014	5.481	G	6,816	\$30,160,800	311		
2243690	K	17TH AVENUE	BMT SEA BEACH	T	O		4	S	5/30/2014	6.173	VG	8,946	\$39,586,050	311		
2243700	K	18TH AVENUE	BMT SEA BEACH	T	O		1	S	7/25/2013	6.632	VG	5,200	\$23,010,000	311		
2243710	K	19TH AVENUE	BMT SEA BEACH	T	O		4	S	5/29/2014	4.237	F	4,800	\$21,240,000	311		
2243720	K	20TH AVENUE	BMT SEA BEACH	T	O		1	S	6/2/2014	6.421	VG	7,000	\$30,975,000	311		
2243730	K	65TH STREET	BMT SEA BEACH	T	O		4	S	5/23/2014	5.132	G	12,000	\$53,100,000	311		
2243740	K	BAY PARKWAY	BMT SEA BEACH	T	O		4	S	5/22/2014	4.658	F	16,800	\$74,340,000	311		
2243750	K	AVENUE O	BMT SEA BEACH	T	O		1	S	8/12/2013	5.706	G	4,658	\$20,611,650	311		

**INVENTORY SORTED BY BORO AND COMMUNITY BOARD DISTRICT**

BIN	BORO	FEATURE CARRIED	FEATURE CROSSED	RAIL L RO	BRIDGE TYPE	OTHER OWNER	SPA NS	RT NG SR	Inspection Date	Condition Rating	VR BL RT	DECK AREA	REPLACEMENT COST	CD	CD2	CD3
2243760	K	AVENUE P	BMT SEA BEACH	T	O		1	S	8/13/2013	6.140	VG	5,544	\$24,532,200	311		
2243770	K	KINGS HIGHWAY	BMT SEA BEACH	T	O		1	S	6/28/2013	6.628	VG	5,032	\$22,266,600	311		
2243780	K	HIGHLAWN AVENUE	BMT SEA BEACH	T	O		1	S	8/16/2013	6.440	VG	6,960	\$30,798,000	311		
2243800	K	AVENUE T	BMT SEA BEACH	T	O		1	S	7/3/2013	6.200	VG	5,360	\$23,718,000	311		
2243820	K	21ST AVENUE	BMT SEA BEACH	T	O		4	S	7/9/2014	4.289	F	21,400	\$94,695,000	311		
2243370	K	17TH AVENUE	LIRR BAY RIDGE	N	O		1	S	10/2/2014	4.745	F	3,406	\$15,071,550	312		
2243380	K	18TH AVENUE	LIRR BAY RIDGE	N	O		1	S	10/2/2014	4.625	F	6,006	\$26,576,550	312		
2243390	K	52ND STREET	LIRR BAY RIDGE	N	O		1	S	10/1/2014	6.017	VG	3,293	\$14,571,525	312		
2243400	K	50TH STREET	LIRR BAY RIDGE	N	O		2	S	9/5/2013	4.731	F	7,100	\$31,417,500	312		
2243410	K	MCDONALD AVENUE	LIRR BAY RIDGE	N	O		1	S	10/1/2014	5.141	G	2,760	\$12,213,000	312		
2243420	K	EAST 3RD STREET	LIRR BAY RIDGE	N	O		1	S	8/8/2013	6.517	VG	1,840	\$8,142,000	312		
2243439	K	OCEAN PARKWAY	LIRR BAY RIDGE	N	O		1	S	9/19/2014	4.927	F	7,000	\$30,975,000	312		
2243440	K	CONEY ISLAND AVENUE	LIRR BAY RIDGE	N	O		1	S	9/18/2014	5.043	G	3,231	\$14,297,175	312		
2243840	K	9TH AVENUE	NYCTA BMT YARD	T	O		5	S	8/19/2013	5.736	G	12,440	\$55,047,000	312		
2243940	K	9TH AVENUE	NYCTA IND SUBWAY	T	O		5	S	8/19/2013	4.737	F	6,300	\$27,877,500	312		
2231329	K	BSHP	26TH AVENUE		A		1	S	4/1/2014	4.600	F	6,700	\$29,647,500	313		
2231330	K	27TH AVENUE PEDESTRIAN BRIDGE	BSHP		A-PED	P	1	C	1/27/2014	4.021	F	2,100	\$9,292,500	313		
2231340	K	CROPSEY AVENUE	BSHP		A		2	S	7/10/2014	4.639	F	13,100	\$57,967,500	313		
2231360	K	BSHP	OCEAN PARKWAY		A		3	S	7/16/2014	6.448	VG	29,637	\$131,143,725	313		
2231370	K	GUIDER AVENUE RAMP TO BSHP	BSHP		A		4	S	9/23/2014	6.778	VG	10,548	\$46,674,900	313		
2231380	K	CONEY ISLAND AVENUE	BSHP		A		4	S	10/15/2013	5.708	G	19,866	\$87,907,050	313		
2240301	K	CROPSEY AVENUE SOUTHBOUND	CONEY ISLAND CREEK		WO		3	S	7/2/2013	5.000	G	9,400	\$41,595,000	313		
2240302	K	CROPSEY AVENUE NORTHBOUND	CONEY ISLAND CREEK		WO		3	S	10/27/2014	4.718	F	9,400	\$41,595,000	313		
2240540	K	STILLWELL AVENUE	CONEY ISLAND CREEK		WO		2	S	6/12/2013	6.292	VG	17,000	\$75,225,000	313		
2243570	K	86TH STREET	BMT SEA BEACH	T	O		1	S	6/4/2014	5.797	G	12,167	\$53,838,975	313		
2243020	K	PARKSIDE AVENUE - OCEAN AVENUE	BMT SUBWAY, BRIGHTON	T	O		6	S	6/18/2014	4.043	F	48,700	\$215,497,500	314		
2243040	K	CROOKE AVENUE	BMT SUBWAY, BRIGHTON	T	O		4	S	6/11/2014	4.421	F	6,000	\$26,550,000	314		
2243050	K	CATON AVENUE	BMT SUBWAY, BRIGHTON	T	O		4	S	8/23/2013	4.842	F	20,800	\$92,040,000	314		
2243080	K	EAST 18TH STREET - CHURCH AVE	BMT SUBWAY, BRIGHTON	T	O		4	S	8/20/2013	4.545	F	18,200	\$80,535,000	314		
2243100	K	BEVERLY ROAD	BMT SUBWAY, BRIGHTON	T	O		3	S	6/3/2014	4.263	F	4,200	\$18,585,000	314		
2243110	K	CORTELYOU ROAD	BMT SUBWAY, BRIGHTON	T	O		3	S	8/20/2013	6.139	VG	4,810	\$21,284,250	314		
2243120	K	DORCHESTER ROAD	BMT SUBWAY, BRIGHTON	T	O		1	S	6/16/2014	5.863	G	4,825	\$21,350,625	314		
2243130	K	DITMAS AVENUE	BMT SUBWAY, BRIGHTON	T	O		1	S	8/22/2013	5.723	G	5,150	\$22,788,750	314		
2243140	K	NEWKIRK AVENUE	BMT SUBWAY, BRIGHTON	T	O		3	S	6/17/2014	4.574	F	4,100	\$18,142,500	314		
2243150	K	FOSTER AVENUE	BMT SUBWAY, BRIGHTON	T	O		1	S	6/9/2014	4.417	F	3,000	\$13,275,000	314		
2243450	K	EAST 14TH STREET	LIRR BAY RIDGE	N	O		1	S	9/17/2014	4.809	F	1,775	\$7,854,375	314		
2243460	K	EAST 15TH STREET PEDESTRIAN BRIDGE	LIRR BAY RIDGE	N	O-PED		3	C	8/12/2014	5.592	G	900	\$3,982,500	314		

**INVENTORY SORTED BY BORO AND COMMUNITY BOARD DISTRICT**

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2243480	K	OCEAN AVENUE	LIRR BAY RIDGE	N	O		2	S	9/16/2014	4.965	F	5,000	\$22,125,000	314		
2243490	K	BEDFORD AVENUE	LIRR BAY RIDGE	N	O		6	S	9/15/2014	5.097	G	12,000	\$53,100,000	314		
2243500	K	NOSTRAND AVENUE	LIRR BAY RIDGE	N	O		2	S	9/29/2014	4.898	F	4,320	\$19,116,000	314		
2231390	K	EAST 12TH STREET	BSHP		A		4	S	7/7/2014	4.542	F	17,200	\$76,110,000	315		
2231409	K	BSHP	SHEEPSHEAD BAY ROAD		A		1	S	4/1/2014	4.738	F	6,500	\$28,762,500	315		
2231419	K	BSHP	OCEAN AVENUE		A		3	S	3/25/2014	4.306	F	14,000	\$61,950,000	315		
2231429	K	BSHP	BEDFORD AVENUE		A		3	S	4/23/2014	4.278	F	12,000	\$53,100,000	315		
2231439	K	BSHP	NOSTRAND AVENUE		A		3	S	3/25/2014	4.264	F	13,000	\$57,525,000	315		
2231449	K	KNAPP STREET	BSHP		A		1	S	4/9/2014	4.313	F	9,500	\$42,037,500	315		
2233080	K	EAST 14TH STREET PEDESTRIAN BRIDGE	BSHP		A-PED		14	C	8/5/2014	4.164	F	4,700	\$20,797,500	315		
2240320	K	OCEAN AVENUE PEDESTRIAN BRIDGE	SHEEPSHEAD BAY		WO-PED		30	C	5/8/2014	4.532	F	4,450	\$19,691,250	315		
2243790	K	AVENUE S	BMT SEA BEACH	T	O		1	S	7/2/2013	5.967	G	5,360	\$23,718,000	315		
2243810	K	AVENUE U	BMT SEA BEACH	T	O		1	S	6/20/2014	5.294	G	5,880	\$26,019,000	315		
2243569	K	ATLANTIC AVENUE	LIRR ATLANTIC AVENUE	L	O		75	S	6/18/2014	3.620	F	135,100	\$597,817,500	316	305	
2243850	K	LIBERTY AVENUE	LIRR BAY RIDGE	N	O		3	S	9/23/2014	6.103	VG	6,659	\$29,466,075	316		
2243860	K	GLENMORE AVENUE	LIRR BAY RIDGE	N	O		2	S	9/22/2014	6.456	VG	5,616	\$24,850,800	316		
2243870	K	PITKIN AVENUE	LIRR BAY RIDGE	N	O		2	S	9/24/2014	6.279	VG	5,328	\$23,576,400	316		
2243890	K	SUTTER AVENUE	LIRR BAY RIDGE	N	O		3	S	9/26/2014	6.292	VG	5,497	\$24,324,225	316		
2243900	K	BLAKE AVENUE	LIRR BAY RIDGE	N	O		3	S	9/26/2014	4.927	F	4,912	\$21,735,600	316		
2243910	K	LIVONIA AVENUE PEDESTRIAN BRIDGE	LIRR BAY RIDGE	N	O-PED		6	C	8/7/2014	4.833	F	2,500	\$11,062,500	316		
2231479	K	BSHP	MILL BASIN		WMA		14	S	11/4/2014	3.269	F	73,500	\$325,237,500	318		
2231481	K	BSHP WESTBOUND	PAERDEGAT BASIN		WA		3	S	11/5/2013	6.939	VG	50,052	\$221,480,100	318		
2231482	K	BSHP EASTBOUND	PAERDEGAT BASIN		WA		5	S	11/4/2014	7.000	VG	82,074	\$363,177,450	318		
2243510	K	FLATBUSH AVENUE	LIRR BAY RIDGE	N	O		2	S	9/30/2014	4.651	F	5,900	\$26,107,500	318		
2243520	K	BROOKLYN AVENUE	LIRR BAY RIDGE	N	O		3	S	8/8/2013	5.873	G	4,500	\$19,912,500	318		
2243530	K	AVENUE H	LIRR BAY RIDGE	N	O		2	S	9/9/2013	5.956	G	35,100	\$155,317,500	318		
2243010	K	LINCOLN ROAD	BMT SUBWAY, BRIGHTON	T	O		1	S	5/19/2014	6.685	VG	6,243	\$27,625,275	355		
2244010	K	EAST DRIVE (ENDALE ARCH)	PEDESTRIAN PATH NEAR GRAND ARMY PLAZA		O	P	1	C	5/28/2014	4.367	F	1,533	\$6,783,525	355		
2244020	K	WEST DRIVE (MEADOWPORT ARCH)	PEDESTRIAN PATH NEAR GRAND ARMY PLAZA		O	P	1	S	5/16/2013	5.321	G	2,500	\$11,062,500	355		
2244030	K	EAST DRIVE	BRIDLE PATH NEAR ZOO		O	P	1	S	5/17/2013	4.878	F	2,000	\$8,850,000	355		
2244040	K	EAST DRIVE (EAST WOOD ARCH)	PEDESTRIAN PATH NEAR CENTER DRIVE		O	P	1	C	6/16/2014	4.667	F	1,066	\$4,717,050	355		
2244050	K	CENTER DRIVE (NETHERMEAD ARCHES)	PEDESTRIAN PATH & STREAM		WO	P	3	S	5/22/2013	5.000	G	7,020	\$31,063,500	355		
2244060	K	HILL DRIVE (CLEFT RIDGE SPAN)	PEDESTRIAN PATH SOUTH OF BOATHOUSE		O	P	1	C	5/1/2014	4.433	F	750	\$3,318,750	355		
2244100	K	WEST FOOTBRIDGE	PROSPECT PARK STREAM		WO-PED	P	1	C	1/24/2014	4.889	F	308	\$1,362,900	355		
2244120	K	HILL DRIVE (TERRACE BRIDGE)	PROSPECT PARK LAKE		WO	P	3	S	9/16/2014	3.436	F	7,800	\$34,515,000	355		
2244130	K	PEDESTRIAN NEAR BOATHOUSE (LULLWATER BRIDGE)	PROSPECT PARK LAKE		WO-PED	P	1	C	5/22/2014	4.898	F	1,000	\$4,425,000	355		
2231450	K	BSHP	GERRITSEN INLET		WA		11	S	8/12/2014	3.418	F	52,000	\$230,100,000	356		

**INVENTORY SORTED BY BORO AND COMMUNITY BOARD DISTRICT**

BIN	BORO	FEATURE CARRIED	FEATURE CROSSED	RAIL L RO	BRIDGE TYPE	OTHER OWNER	SPA NS	RT NG SR	Inspection Date	Condition Rating	VR BL RT	DECK AREA	REPLACEMENT COST	CD	CD2	CD3
2231460	K	FLATBUSH AVENUE	BSHP		A		2	S	10/18/2013	6.206	VG	14,058	\$62,206,650	356		
2231499	K	BSHP	ROCKAWAY PARKWAY		A		1	S	11/5/2014	7.000	VG	10,370	\$45,887,250	356		
2231509	K	BSHP	FRESH CREEK		WA		3	S	11/25/2013	6.831	VG	40,095	\$177,420,375	356		
2231519	K	PENNSYLVANIA AVENUE	BSHP		A		2	S	6/18/2013	5.694	G	6,640	\$29,382,000	356		
2240019	KM	BROOKLYN BRIDGE	EAST RIVER		WEO		75	S	12/5/2014	3.139	F	503,788	\$2,229,261,900	103	302	101
2240027	KM	MANHATTAN BRIDGE (LOWER LEVEL)	EAST RIVER	T	WEO		23	S	10/22/2014	3.889	F	616,390	\$2,727,525,750	103	302	
2240028	KM	MANHATTAN BRIDGE (UPPER LEVEL)	NYCTA TRACKS-BMT	T	WEO		43	S	10/21/2014	3.757	F	587,424	\$2,599,351,200	103	302	
2240039	KM	WILLIAMSBURG BRIDGE	EAST RIVER	T	WEO		53	S	10/20/2014	4.542	F	824,000	\$3,646,200,000	103	301	
2240370	KO	GREENPOINT AVENUE BRIDGE	NEWTOWN CREEK	L	WMO		12	S	8/5/2013	5.083	G	76,106	\$336,769,050	301	402	
2240390	KO	GRAND STREET BRIDGE	NEWTOWN CREEK		WMO		2	S	10/28/2014	4.069	F	5,100	\$22,567,500	301	405	
2240639	KO	PULASKI BRIDGE	NEWTOWN CREEK		WMO		44	S	6/5/2014	4.437	F	205,770	\$910,532,250	301	402	
2232000	M	BATTERY PLACE	FDR DRIVE		AT		2	S	10/16/2013	5.182	G	142,000	\$628,350,000	101		
223201A	M	FDR DRIVE NORTHBOUND OFF RMP	FDR DRIVE & SOUTH STREET		AR		17	S	7/23/2014	4.493	F	23,373	\$103,425,525	101		
223201B	M	SOUTH STREET RAMP TO FDR DRIVE SOUTHBOUND	SOUTH STREET		AR		10	S	2/24/2014	3.791	F	13,388	\$59,241,900	101		
223201D	M	RAMP TO NORTHBOUND FDR DRIVE	FDR DRIVE & SOUTH STREET		AR		22	S	2/25/2014	4.967	F	15,825	\$70,025,625	101	103	
224001A	M	PARK ROW TO BROOKLYN	WILLIAM STREET NORTHBOUND		OE		4	S	4/23/2014	4.229	F	10,167	\$44,988,975	101		
224001B	M	TO BROOKLYN FROM FDR DRIVE	FRANKFORT & PEARL STREETS		OE		31	S	8/1/2014	4.926	F	51,400	\$227,445,000	101	103	
224001C	M	PEARL STREET TO BROOKLYN	LAND ADJACENT TO BRIDGE		OE		9	S	3/28/2014	3.678	F	6,365	\$28,165,125	101		
224001D	M	TO FDR DIVE NORTHBOUND	PEARL STREET		OE		30	S	9/18/2014	4.679	F	49,600	\$219,480,000	101	103	
224001E	M	TO PEARL STREET	LAND ADJACENT TO BRIDGE		OE		3	S	6/2/2014	5.197	G	5,300	\$23,452,500	101		
224001G	M	TO PARK ROW	ROSE STREET		OE		11	S	4/9/2014	4.549	F	16,551	\$73,238,175	101		
2267380	M	WEST STREET	RECTOR STREET - BROOKLYN BATTERY MANHATTAN PLAZA		AT		1	S	11/19/2013	5.033	G	25,760	\$113,988,000	101		
2268480	M	CHAMBERS STREET PEDESTRIAN BRIDGE	ROUTE 9A - WEST STREET		O-PED		10	C	5/30/2014	5.391	G	7,481	\$33,103,425	101		
2268930	M	MORRIS STREET PEDESTRIAN BRIDGE	BROOKLYN-BATTERY TUNNEL PLAZA		A-PED		3	C	7/15/2013	3.875	F	1,842	\$8,150,850	101		
223201C	M	FDR DR SOUTHBOUND OFF RAMP	SOUTH STREET		AR		8	S	2/6/2014	5.209	G	36,700	\$162,397,500	103		
2232029	M	CORLEARS PARK ROAD	FDR DRIVE		A	P	4	S	3/20/2014	3.813	F	4,100	\$18,142,500	103		
2232030	M	DELANCEY STREET PEDESTRIAN BRIDGE	FDR DRIVE		A-PED	P	12	C	3/9/2014	4.443	F	3,390	\$15,000,750	103		
2232040	M	HOUSTON STREET	FDR DRIVE		A		2	S	5/6/2014	3.750	F	11,010	\$48,719,250	103		
223204A	M	FDR NORTHBOUND RAMP TO HOUSTON STREET	RELIEF		AR		4	S	1/17/2014	4.706	F	6,150	\$27,213,750	103		
223204B	M	HOUSTON STREET RAMP TO FDR DRIVE NORTHBOUND	RELIEF		AR		4	S	1/17/2014	4.792	F	7,125	\$31,528,125	103		
2232050	M	EAST 6TH STREET PEDESTRIAN BRIDGE	FDR DRIVE		A-PED	P	19	C	3/13/2014	4.167	F	2,200	\$9,735,000	103		
2233020	M	EAST 10TH STREET PEDESTRIAN BRIDGE	FDR DRIVE		A-PED	P	21	C	4/14/2014	4.673	F	2,754	\$12,186,450	103		
224001F	M	PEARL STREET TO FDR DRIVE	LAND ADJACENT TO BRIDGE		OE		3	S	7/9/2014	5.141	G	5,200	\$23,010,000	103		
2245010	M	11TH AVENUE VIADUCT	LIRR WEST SIDE YARD	AL	O		39	S	12/12/2014	4.056	F	149,100	\$659,767,500	104		
224501B	M	WEST 33RD STREET	AMTRAK 30 STREET BRANCH	A	OR		8	S	3/7/2014	4.500	F	16,500	\$73,012,500	104		
224501C	M	WEST 33RD STREET	LAND ADJACENT TO AMTRAK	A	OR		2	S	5/14/2013	4.472	F	2,360	\$10,443,000	104		
224501D	M	WEST 34TH STREET	AMTRAK 30 STREET BRANCH	A	OR		4	S	5/13/2013	4.542	F	11,800	\$52,215,000	104		

**INVENTORY SORTED BY BORO AND COMMUNITY BOARD DISTRICT**

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224501E	M	WEST 35TH STREET	AMTRAK 30 STREET BRANCH	A	OR		3	S	7/29/2014	4.181	F	6,500	\$28,762,500	104		
224501F	M	WEST 36TH STREET	AMTRAK 30 STREET BRANCH	A	OR		3	S	11/12/2013	4.612	F	5,520	\$24,426,000	104		
2245060	M	WEST 37TH STREET	AMTRAK 30 STREET BRANCH	A	O		3	S	11/12/2013	6.190	VG	7,505	\$33,209,625	104		
2245070	M	WEST 38TH STREET	AMTRAK 30 STREET BRANCH	A	O		2	S	7/8/2014	4.135	F	6,200	\$27,435,000	104		
2245080	M	WEST 39TH STREET	AMTRAK 30 STREET BRANCH	A	O		3	S	7/8/2014	4.173	F	6,300	\$27,877,500	104		
2245090	M	WEST 43RD STREET	AMTRAK 30 STREET BRANCH	A	O		2	S	4/18/2014	4.662	F	4,140	\$18,319,500	104		
2245100	M	WEST 44TH STREET	AMTRAK 30 STREET BRANCH	A	O		2	S	4/18/2014	4.559	F	4,300	\$19,027,500	104		
2245110	M	WEST 45TH STREET	AMTRAK 30 STREET BRANCH	A	O		2	S	4/29/2014	5.338	G	4,100	\$18,142,500	104		
2245120	M	WEST 46TH STREET	AMTRAK 30 STREET BRANCH	A	O		2	S	4/29/2014	4.500	F	4,100	\$18,142,500	104		
2245130	M	WEST 47TH STREET	AMTRAK 30 STREET BRANCH	A	O		2	S	5/6/2014	4.721	F	4,100	\$18,142,500	104		
2245140	M	WEST 48TH STREET	AMTRAK 30 STREET BRANCH	A	O		2	S	5/6/2014	4.618	F	4,100	\$18,142,500	104		
2245150	M	WEST 49TH STREET	AMTRAK 30 STREET BRANCH	A	O		3	S	5/6/2014	4.426	F	4,100	\$18,142,500	104		
2245160	M	WEST 51ST STREET	AMTRAK 30 STREET BRANCH	A	O		2	S	5/13/2014	4.853	F	4,300	\$19,027,500	104		
2245170	M	WEST 52ND STREET	AMTRAK 30 STREET BRANCH	A	O		2	S	5/13/2014	5.191	G	4,300	\$19,027,500	104		
2245180	M	WEST 53RD STREET	AMTRAK 30 STREET BRANCH	A	O		2	S	5/20/2014	5.221	G	5,100	\$22,567,500	104		
2245190	M	WEST 58TH STREET	AMTRAK 30 STREET BRANCH	A	O		2	S	5/20/2014	4.706	F	4,100	\$18,142,500	104		
2245209	M	11TH AVENUE	AMTRAK 30 STREET BRANCH	A	O		2	S	6/4/2014	4.426	F	15,400	\$68,145,000	104		
2245210	M	WEST 42ND STREET	AMTRAK 30 STREET BRANCH	A	O		4	S	11/5/2014	4.587	F	10,300	\$45,577,500	104		
2245220	M	WEST 57TH STREET	AMTRAK 30 STREET BRANCH	A	O		3	S	5/20/2014	4.853	F	9,100	\$40,267,500	104		
2245330	M	WEST 41ST STREET	AMTRAK 30 STREET BRANCH	A	O		3	S	7/24/2014	4.444	F	6,200	\$27,435,000	104		
2245340	M	WEST 50TH STREET	AMTRAK 30 STREET BRANCH	A	O		2	S	5/13/2014	4.500	F	4,100	\$18,142,500	104		
2245350	M	WEST 54TH STREET	AMTRAK 30 STREET BRANCH	A	O		2	S	5/20/2014	5.492	G	4,700	\$20,797,500	104		
2245360	M	WEST 55TH STREET	AMTRAK 30 STREET BRANCH	A	O		2	S	5/20/2014	5.529	G	4,300	\$19,027,500	104		
2245370	M	WEST 56TH STREET	AMTRAK 30 STREET BRANCH	A	O		2	S	5/20/2014	5.397	G	4,400	\$19,470,000	104		
2245440	M	WEST 40TH STREET	AMTRAK 30 STREET BRANCH	A	O		4	S	7/23/2014	4.103	F	9,400	\$41,595,000	104		
2257569	M	MILLER HIGHWAY	TERRAIN		A		64	S	12/5/2014	4.352	F	272,475	\$1,205,701,875	104	107	
226672A	M	WEST 31ST STREET	AMTRAK LAYUP TRACKS	A	O		9	S	11/15/2014	3.619	F	8,800	\$38,940,000	104		
2245460	M	PARK AVE SOUTHBOUND	EAST 45TH STREET		O		1	S	5/22/2014	4.514	F	2,400	\$10,620,000	105		
2245470	M	PARK AVE NORTHBOUND	EAST 45TH STREET		O		1	S	5/21/2014	4.865	F	2,400	\$10,620,000	105		
2246540	M	EAST 34TH STREET	PARK AVENUE TUNNEL		OT		1	S	8/20/2014	4.117	F	36,200	\$160,185,000	105	106	
2246550	M	PARK AVENUE VIADUCT	EAST 42ND STREET		O		10	S	12/10/2014	4.478	F	22,150	\$98,013,750	105		
2232070	M	EAST 25TH STREET PEDESTRIAN BRIDGE	FDR DRIVE		A-PED		3	C	3/23/2014	4.600	F	1,700	\$7,522,500	106		
2232100	M	EAST 51ST STREET PEDESTRIAN BRIDGE	FDR DRIVE		A-PED	P	6	C	4/22/2014	4.283	F	2,800	\$12,390,000	106		
2233038	M	FDR DRIVE SOUTHBOUND	FDR DRIVE NORTHBOUND / EAST 62ND STREET		AT		34	S	11/25/2014	6.563	VG	58,700	\$259,747,500	106	108	
224004D	M	TO QUEENS FROM EAST 58TH STREET	EAST 59TH STREET		OE		12	S	6/13/2014	4.396	F	10,858	\$48,046,650	106	108	
2246560	M	TUDOR CITY PLACE	EAST 42ND STREET		O		1	S	1/24/2014	5.133	G	6,600	\$29,205,000	106		
2246570	M	EAST 42ND STREET - EAST 47TH STREET	FIRST AVE TUNNEL		OT		2	S	5/20/2014	4.922	F	95,000	\$420,375,000	106		

**INVENTORY SORTED BY BORO AND COMMUNITY BOARD DISTRICT**

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2268650	M	FDR NORTHBOUND EAST 42ND STREET TO EAST 49TH STREET	EAST RIVER		A		119	S	10/17/2013	3.660	F	30,767	\$136,143,975	106		
2229289	M	HHP VIADUCT	AMTRAK - WEST 72ND STREET - WEST 79TH STREET	A	A		145	S	9/17/2014	3.597	F	213,173	\$943,290,525	107		
222928C	M	PEDESTRIAN BRIDGE AT WEST 73RD STREET	HHP - AMTRAK	A	A-PED	P	5	C	8/12/2013	3.812	F	3,700	\$16,372,500	107		
222928D	M	WEST 72ND STREET RAMP TO HHP NORTHBOUND	RELIEF		AR		1	S	7/18/2014	6.648	VG	1,750	\$7,743,750	107		
2229290	M	WEST 79TH STREET	AMTRAK	A	A		1	S	6/11/2014	4.424	F	4,500	\$19,912,500	107		
2229309	M	HHP	RIVERSIDE PARK		A		1	S	1/13/2014	5.267	G	2,172	\$9,611,100	107		
2229311	M	HHP SOUTHBOUND	RAMP TO WEST 96TH STREET		A		1	S	1/28/2014	4.455	F	2,000	\$8,850,000	107		
2229312	M	HHP NORTHBOUND	RAMP TO WEST 96TH STREET		A		1	S	1/27/2014	4.182	F	2,000	\$8,850,000	107		
2229321	M	HHP SOUTHBOUND	RAMP FROM WEST 96TH STREET		A		1	S	1/31/2014	5.133	G	2,000	\$8,850,000	107		
2229322	M	HHP NORTHBOUND	RAMP FROM WEST 96TH STREET		A		1	S	1/31/2014	5.300	G	2,000	\$8,850,000	107		
2246970	M	RIVERSIDE DRIVE	WEST 96TH STREET		O		3	S	5/6/2013	5.471	G	10,600	\$46,905,000	107		
2267250	M	HHP	AMTRAK - WEST 96TH STREET	A	A		55	S	11/1/2014	3.548	F	40,000	\$177,000,000	107		
2267717	M	79TH STREET PEDESTRIAN PLAZA	79TH STREET BOAT BASIN GARAGE		A	P	10	S	5/10/2013	4.444	F	27,400	\$121,245,000	107		
2267718	M	79TH STREET TRAFFIC CIRCLE	79TH STREET PEDESTRIAN PLAZA		A	P	34	S	5/15/2013	3.738	F	24,130	\$106,775,250	107		
226771A	M	79TH STREET RAMP TO HHP	79TH STREET BOAT BASIN GARAGE		AR	P	4	S	5/8/2014	4.221	F	3,131	\$13,854,675	107		
226771B	M	79TH STREET RAMP TO GARAGE	79TH STREET BOAT BASIN GARAGE		AR	P	21	S	5/14/2014	4.452	F	8,989	\$39,776,325	107		
226771C	M	GARAGE RAMP TO 79TH STREET	79TH STREET BOAT BASIN GARAGE		AR	P	21	S	5/12/2014	4.435	F	9,095	\$40,245,375	107		
226771D	M	SOUTHBOUND HHP RAMP TO 79TH STREET	79TH STREET BOAT BASIN GARAGE		AR	P	4	S	5/8/2014	4.403	F	2,601	\$11,509,425	107		
2269190	M	WEST 70TH STREET	AMTRAK	A	O		3	S	11/19/2013	5.542	G	17,258	\$76,366,650	107		
2269200	M	RIVERSIDE DRIVE SOUTH	AMTRAK	A	O		11	S	11/4/2013	6.069	VG	69,040	\$305,502,000	107		
2269210	M	WEST 68TH STREET	AMTRAK	A	O		3	S	11/5/2013	6.593	VG	5,382	\$23,815,350	107		
M00003	M	HHP ON/OFF RMP-79TH STREET SOUTH SIDE	PEDESTRIAN PATH SOUTH OF 79TH STREET		A		1	C	6/6/2014	4.467	F	846	\$3,743,550	107		
M00004	M	HHP ON/OFF RAMP-79TH STREET NORTH SIDE	PEDESTRIAN PATH NORTH OF 79TH STREET		A		1	C	6/6/2014	4.667	F	846	\$3,743,550	107		
2232110	M	EAST 63RD STREET PEDESTRIAN BRIDGE	FDR DRIVE		A-PED	P	11	U	11/23/2011	4.912	F	2,100	\$9,292,500	108		
2232120	M	EAST 71ST STREET PEDESTRIAN BRIDGE	FDR DRIVE		A-PED	P	19	C	8/17/2014	4.761	F	3,700	\$16,372,500	108		
2232140	M	EAST 78TH STREET PEDESTRIAN BRIDGE	FDR DRIVE		A-PED	P	13	C	5/8/2014	6.708	VG	5,226	\$23,125,050	108		
2232167	M	PROMENADE OVER FDR DRIVE	FDR DRIVE- EAST 81ST STREET - EAST 90TH STREET		A-PED	P	53	S	7/2/2013	3.143	F	93,000	\$411,525,000	108		
2233040	M	EAST 60TH STREET	FDR DRIVE		A	P	17	S	7/2/2014	5.000	G	24,480	\$108,324,000	108		
224004A	M	TO EAST 60TH STREET FROM QUEENS	FIRST AVENUE		OE		13	S	4/21/2014	5.338	G	14,800	\$65,490,000	108		
224004B	M	TO QUEENS FROM EAST 59TH STREET	FIRST AVENUE		OE		13	S	4/22/2014	5.542	G	14,800	\$65,490,000	108		
224004C	M	TO EAST 62ND STREET FROM QUEENS	EAST 60TH - EAST 61ST STREET		OE		10	S	7/17/2014	4.985	F	16,720	\$73,986,000	108		
224004J	M	25X TO/FROM 2ND AVENUE	NYC GARAGE		OE		14	S	4/21/2014	4.829	F	22,058	\$97,606,650	108		
2269820	M	EAST 81ST STREET PEDESTRIAN BRIDGE	FDR DRIVE NORTHBOUND		A-PED	P	3	C	6/8/2014	3.439	F	600	\$2,655,000	108		
2229349	M	HHP	WEST 158TH STREET	A	A		44	S	10/10/2014	4.155	F	140,000	\$619,500,000	109	112	
2245230	M	WEST 148TH STREET PEDESTRIAN BRIDGE	AMTRAK 30 STREET BRANCH	A	O-PED	P	5	C	8/9/2013	4.200	F	1,100	\$4,867,500	109		
2245290	M	WEST 155TH STREET PEDESTRIAN BRIDGE	AMTRAK 30 STREET BRANCH	A	O-PED		3	C	7/30/2013	3.862	F	800	\$3,540,000	109	112	
2246660	M	RIVERSIDE DRIVE	WEST 125TH STREET - WEST 134TH STREET		O		27	S	7/12/2013	4.472	F	148,300	\$656,227,500	109		

**INVENTORY SORTED BY BORO AND COMMUNITY BOARD DISTRICT**

BIN	BORO	FEATURE CARRIED	FEATURE CROSSED	RAIL L RO	BRIDGE TYPE	OTHER OWNER	SPA NS	RT NG SR	Inspection Date	Condition Rating	VR BL RT	DECK AREA	REPLACEMENT COST	CD	CD2	CD3
2246670	M	WEST 134TH STREET	TERRAIN		O		4	S	6/13/2013	4.870	F	7,500	\$33,187,500	109		
2246720	M	RIVERSIDE DRIVE	WEST 158TH STREET - AMTRAK	A	O		77	S	10/24/2014	3.528	F	185,658	\$821,536,650	109	112	
2246980	M	RIVERSIDE DRIVE	WEST 138TH STREET		O		1	S	1/16/2014	4.900	F	6,700	\$29,647,500	109		
2266229	M	HHP	PEDESTRIAN UNDERPASS AT WEST 148TH STREET		A		1	S	1/30/2014	5.000	G	1,840	\$8,142,000	109		
2267130	M	RIVERSIDE DRIVE	WEST 145TH STREET		O		1	S	4/29/2013	5.133	G	5,800	\$25,665,000	109		
2269240	M	RIVERSIDE DRIVE	WEST 155TH STREET		O		1	S	4/25/2013	4.640	F	2,780	\$12,301,500	109	112	
2246490	M	A.C. POWELL BOULEVARD NORTHBOUND	A.C. POWELL BOULEVARD		O		1	S	1/31/2014	4.347	F	3,000	\$13,275,000	110		
2246710	M	WEST 153RD STREET	A.C. POWELL BLVD		O		1	S	1/31/2014	4.611	F	3,082	\$13,637,850	110		
2232180	M	EAST 103RD STREET PEDESTRIAN BRIDGE	FDR DRIVE		A-PED		18	C	8/17/2014	4.390	F	6,807	\$30,120,975	111		
2232190	M	EAST 111TH STREET PEDESTRIAN BRIDGE	FDR DRIVE		A-PED	P	9	C	8/25/2014	4.319	F	4,254	\$18,823,950	111		
2232200	M	EAST 120TH STREET PEDESTRIAN BRIDGE	FDR DRIVE		A-PED	P	18	C	8/24/2014	4.114	F	3,978	\$17,602,650	111		
2233059	M	HARLEM RIVER DRIVE	EAST 127TH STREET RAMP TO/FROM HRD NORTHBOUND		A		11	S	6/24/2014	3.552	F	51,000	\$225,675,000	111		
224005A	M	RAMP FROM FDR DRIVE	HARLEM RIVER DR NORTHBOUND		OR		11	S	11/7/2014	6.887	VG	28,233	\$124,931,025	111		
224007A	M	RAMP TO MADISON AVENUE	EAST 138TH STREET		OR		7	S	2/6/2014	5.028	G	19,880	\$87,969,000	111		
2240620	M	WARDS ISLAND PEDESTRIAN BRIDGE	HARLEM RIVER		WMO-PED		10	C	4/2/2014	4.667	F	19,500	\$86,287,500	111		
2245319	M	EAST 97TH STREET	METRO NORTH MAIN LN	M	O		1	S	12/17/2014	4.647	F	3,200	\$14,160,000	111		
2246620	M	EAST 128TH STREET PEDESTRIAN BRIDGE	3RD AVE BRIDGE APPROACH		O-PED		18	C	12/15/2014	3.939	F	2,300	\$10,177,500	111		
2246990	M	EAST 129TH STREET PEDESTRIAN BRIDGE	3RD AVENUE BRIDGE RAMP		O-PED	P	5	C	12/2/2013	4.095	F	1,046	\$4,628,550	111		
222934A	M	RAMP TO NORTHBOUND HHP	AMTRAK WEST SIDE	A	AR		26	S	6/30/2014	3.764	F	10,800	\$47,790,000	112		
2229400	M	WEST 181ST STREET PEDESTRIAN BRIDGE	HHP NORTHBOUND		A-PED	P	7	C	2/25/2014	4.493	F	1,500	\$6,637,500	112		
2245040	M	MARGARET CORBIN DRIVE	PEDESTRIAN PATH NEAR CAFÉ		O	P	1	C	6/9/2014	4.933	F	598	\$2,646,150	112		
2245050	M	MARGARET CORBIN DRIVE	PEDESTRIAN PATH NEAR NORTH ENTRANCE		O	P	1	C	4/8/2014	4.600	F	889	\$3,933,825	112		
2245250	M	WEST 158TH STREET	AMTRAK 30 STREET BRANCH	A	O		7	S	10/18/2013	5.903	G	29,170	\$129,077,250	112		
2245260	M	WEST 173RD STREET PEDESTRIAN BRIDGE	AMTRAK 30 STREET BRANCH	A	O-PED	P	2	C	8/6/2013	4.600	F	1,500	\$6,637,500	112		
2245300	M	INWOOD HILL PARK FOOTBRIDGE	AMTRAK 30 STREET BRANCH	A	O-PED	P	6	C	8/6/2013	4.100	F	700	\$3,097,500	112		
2245480	M	TO GEORGE WASHINGTON BRIDGE OPPOSITE WEST 171ST STREET	RIVERSIDE DRIVE		O		1	S	2/24/2014	4.524	F	10,773	\$47,670,525	112		
2246489	M	WEST 181ST STREET	RAMP TO WASHINGTON BRIDGE		O		1	S	1/30/2014	5.200	G	8,200	\$36,285,000	112		
2246500	M	FORT TRYON PLACE	ENTRANCE FROM RIVERSIDE DRIVE		O	P	1	S	3/25/2014	4.200	F	3,280	\$14,514,000	112		
2246510	M	CORBIN PLACE OVERPASS	CORBIN PLACE		O	P	1	S	1/8/2014	5.000	G	2,223	\$9,836,775	112		
2246600	M	WEST 176TH STREET PEDESTRIAN BRIDGE	APPROACH TO GEORGE WASHINGTON BRIDGE		O-PED	P	1	C	3/7/2014	4.200	F	1,200	\$5,310,000	112		
2246690	M	ISHAM PARK VEHICULAR	HARLEM RIVER INLET		O	P	1	S	4/28/2014	6.065	VG	911	\$4,031,175	112		
2246700	M	ISHAM PARK PEDESTRIAN BRIDGE	HARLEM RIVER INLET		WO-PED	P	1	C	1/29/2014	3.552	F	300	\$1,327,500	112		
2266230	M	HHP NORTHBOUND	PEDESTRIAN UNDERPASS INWOOD PARK		A		1	S	1/23/2014	5.000	G	800	\$3,540,000	112		
2266240	M	HHP SOUTHBOUND	PEDESTRIAN UNDERPASS INWOOD PARK		A		1	S	1/23/2014	5.526	G	1,100	\$4,867,500	112		
2267240	M	HRD RAMP TO GEORGE WASHINGTON BRIDGE	HARLEM RIVER DRIVE SOUTHBOUND		A		55	S	10/14/2014	3.042	F	122,900	\$543,832,500	112		
2268760	M	PS-5 PEDESTRIAN BRIDGE	TENTH AVENUE		O-PED		5	C	12/9/2013	4.184	F	1,285	\$5,686,125	112		
M00001	M	WEST 191ST STREET PEDESTRIAN TUNNEL	BROADWAY - IRT #1 SUBWAY		O-PED		1	C	12/9/2014	4.364	F	2,000	\$8,850,000	112		

**INVENTORY SORTED BY BORO AND COMMUNITY BOARD DISTRICT**

BIN	BORO	FEATURE CARRIED	FEATURE CROSSED	RAIL RO	BRIDGE TYPE	OTHER OWNER	SPANS	RT NG SR	Inspection Date	Condition Rating	VR BL RT	DECK AREA	REPLACEMENT COST	CD	CD2	CD3
2245380	M	TRANSVERSE ROAD #1 WESTBOUND	PEDESTRIAN PATH OPPOSITE EAST 66TH STREET		O	P	1	S	1/15/2014	5.000	G	1,500	\$6,637,500	164		
2245420	M	WEST 65TH STREET ENTRANCE EASTBOUND	BRIDLE PATH WEST END		O	P	1	S	1/14/2014	5.100	G	1,300	\$5,752,500	164		
2246000	M	WEST DRIVE (GREYSHOT ARCH)	PEDESTRIAN PATH BETWEEN 61ST & 62ND STREETS		O	P	1	S	1/8/2014	5.400	G	2,500	\$11,062,500	164		
2246010	M	WEST 62ND STREET PEDESTRIAN BRIDGE (PINEBANK ARCH)	BRIDLE PATH		O-PED	P	1	C	7/22/2014	4.654	F	1,000	\$4,425,000	164		
2246030	M	EAST 62ND STREET PEDESTRIAN BRIDGE (GAPSTOW BRIDGE)	THE POND		O-PED	P	1	C	4/21/2014	3.897	F	1,400	\$6,195,000	164		
2246040	M	EAST DRIVE (INSOPE ARCH)	PEDESTRIAN PATH OPPOSITE EAST 62ND STREET		O	P	1	C	4/30/2014	4.400	F	1,515	\$6,703,875	164		
2246050	M	CENTER DRIVE (DRIPROCK ARCH)	PEDESTRIAN OPPOSITE 63RD STREET		O	P	1	S	1/14/2014	4.867	F	1,725	\$7,633,125	164		
2246069	M	EAST DRIVE (GREEN GAP ARCH)	PEDESTRIAN PATH BETWEEN 63RD & 64TH STREETS		O	P	1	S	1/16/2014	4.433	F	2,075	\$9,181,875	164		
2246070	M	CENTER DRIVE (PLAYMATES ARCH)	PEDESTRIAN PATH OPPOSITE 65TH STREET		O	P	1	C	6/11/2014	4.500	F	1,129	\$4,995,825	164		
2246080	M	WEST DRIVE (DALEHEAD ARCH)	BRIDLE OPPOSITE WEST 64TH STREET		O	P	1	S	1/14/2014	4.667	F	2,000	\$8,850,000	164		
2246090	M	PEDESTRIAN BRIDGE OPPOSITE 65TH STREET	TRANSVERSE ROAD #1		O-PED	P	1	C	9/19/2014	4.655	F	2,300	\$10,177,500	164		
2246100	M	CENTER DRIVE	TRANSVERSE ROAD #1		O	P	1	S	2/7/2014	4.467	F	6,000	\$26,550,000	164		
2246110	M	EAST DRIVE	TRANSVERSE ROAD #1		O	P	1	S	3/19/2014	4.667	F	6,000	\$26,550,000	164		
2246120	M	WEST DRIVE	TRANSVERSE ROAD #1		O	P	1	S	3/25/2014	4.700	F	7,900	\$34,957,500	164		
2246130	M	EAST DRIVE (WILLOWDELL ARCH)	PEDESTRIAN PATH OPPOSITE EAST 67TH STREET		O	P	1	C	4/29/2014	3.500	F	666	\$2,947,050	164		
2246140	M	WEST 72ND STREET ENTRANCE (RIFTSTONE ARCH)	BRIDLE PATH		O	P	1	S	1/8/2014	4.467	F	3,600	\$15,930,000	164		
2246150	M	72ND STREET CROSS DRIVE (TERRACE BRIDGE)	PEDESTRIAN PATH TO FOUNTAIN		O	P	3	S	2/24/2014	5.786	G	7,300	\$32,302,500	164		
2246160	M	73RD STREET PEDESTRIAN BRIDGE (BOW BRIDGE)	THE LAKE		WO-PED	P	1	C	4/8/2014	3.946	F	1,700	\$7,522,500	164		
2246170	M	EAST DRIVE (TREFOIL ARCH)	PEDESTRIAN PATH OPPOSITE EAST 73RD STREET		O	P	1	S	1/24/2014	5.130	G	1,900	\$8,407,500	164		
2246230	M	EAST DRIVE	TRANSVERSE ROAD #2		O	P	1	S	3/11/2014	4.600	F	5,080	\$22,479,000	164		
2246240	M	WEST DRIVE	TRANSVERSE ROAD #2		O	P	1	S	3/12/2014	4.167	F	7,200	\$31,860,000	164		
2246250	M	EAST DRIVE	TRANSVERSE ROAD #3		O	P	1	S	1/17/2014	4.300	F	4,500	\$19,912,500	164		
2246260	M	WEST DRIVE	TRANSVERSE ROAD #3		O	P	1	S	3/18/2014	4.800	F	5,100	\$22,567,500	164		
2246270	M	EAST DRIVE	TRANSVERSE ROAD #4		O	P	1	S	3/20/2014	4.100	F	7,000	\$30,975,000	164		
2246280	M	WEST DRIVE	TRANSVERSE ROAD #4		O	P	1	S	3/21/2014	4.167	F	4,700	\$20,797,500	164		
2246320	M	WEST 77TH STREET PEDESTRIAN (OAK BRIDGE)	THE LAKE		WO-PED	P	3	C	4/8/2014	5.474	G	1,100	\$4,867,500	164		
2246330	M	WEST DRIVE (BALCONY BRIDGE)	STREAM TO THE LAKE		WO	P	1	S	1/15/2014	5.000	G	1,817	\$8,040,225	164		
2246340	M	WEST 77TH STREET PEDESTRIAN (LADIES POND BRIDGE)	STREAM TO THE LAKE		WO-PED	P	3	C	10/17/2014	4.355	F	500	\$2,212,500	164		
2246350	M	EAST DRIVE (GREYWACKE ARCH)	PEDESTRIAN PATH OPPOSITE EAST 80TH STREET		O	P	1	C	5/23/2014	3.733	F	1,266	\$5,602,050	164		
2246360	M	WEST DRIVE (WINTERDALE ARCH)	PEDESTRIAN PATH OPPOSITE WEST 82ND STREET		O	P	1	S	1/16/2014	5.182	G	2,502	\$11,071,350	164		
2246380	M	WEST 86TH STREET PEDESTRIAN (SOUTHWEST RESERVOIR BRIDGE)	BRIDLE PATH		O-PED	P	1	C	10/17/2014	4.852	F	700	\$3,097,500	164		
2246390	M	EAST 86TH STREET PEDESTRIAN (SOUTHEAST RESERVOIR BRIDGE)	BRIDLE PATH		O-PED	P	3	C	10/17/2014	4.509	F	1,100	\$4,867,500	164		
2246400	M	PEDESTRIAN PATH OPPOSITE EAST 79TH STREET	TRANSVERSE ROAD #2		O-PED	P	1	C	7/14/2013	4.233	F	3,700	\$16,372,500	164		
2246410	M	TRANSVERSE ROAD 1 EASTBOUND (DENESMOUTH ARCH)	PEDESTRIAN PATH OPPOSITE EAST 65TH STREET		O	P	1	S	2/24/2014	4.636	F	1,739	\$7,695,075	164		
2246430	M	WEST 110TH STREET ENTRANCE (MOUNTCLIFF ARCH)	PEDESTRIAN PATH OPPOSITE WEST 109TH STREET		O	P	1	S	2/24/2014	4.317	F	1,200	\$5,310,000	164		
2246440	M	79TH STREET PEDESTRIAN BRIDGE	TRANSVERSE ROAD #2		O-PED	P	1	C	7/13/2014	3.926	F	5,900	\$26,107,500	164		
2246450	M	EAST 77TH STREET PEDESTRIAN (GLADE ARCH)	PEDESTRIAN PATH OPPOSITE EAST 77TH STREET		O-PED	P	1	C	4/1/2014	4.138	F	5,000	\$22,125,000	164		



### INVENTORY SORTED BY BORO AND COMMUNITY BOARD DISTRICT

BIN	BORO	FEATURE CARRIED	FEATURE CROSSED	RAIL RO	BRIDGE TYPE	OTHER OWNER	SPANS	RT NG SR	Inspection Date	Condition Rating	VR BL RT	DECK AREA	REPLACEMENT COST	CD	CD2	CD3
2246460	M	WEST 77TH STREET ENTRANCE (EAGLEVALE ARCH)	PEDESTRIAN PATH OPPOSITE WEST 77TH STREET		O	P	2	S	1/9/2014	4.263	F	3,066	\$13,567,050	164		
2246470	M	EAST DRIVE (HUDDLESTONE ARCH)	THE LOCH		WO	P	1	S	1/28/2014	4.500	F	1,100	\$4,867,500	164		
2240047	MQ	QUEENSBORO BRIDGE (LOWER LEVEL)	EAST RIVER	AL	WEO		53	S	11/12/2014	4.167	F	626,900	\$2,774,032,500	108	402	401
2240048	MQ	QUEENSBORO BRIDGE (UPPER LEVEL)	EAST RIVER - LL		WEO		37	S	10/13/2014	4.340	F	322,300	\$1,426,177,500	108	402	401
2240640	MQ	ROOSEVELT ISLAND BRIDGE	EAST RIVER EAST CHANNEL		WMO		8	S	10/29/2014	5.569	G	36,500	\$161,512,500	108	401	
2230600	O	STEINWAY STREET	278I WESTBOUND (BOE)		A		1	S	8/7/2014	6.349	VG	5,229	\$23,138,325	401		
2230610	O	STEINWAY STREET	278I EASTBOUND (BOE)		A		1	S	8/8/2014	6.349	VG	5,146	\$22,771,050	401		
2230620	O	37TH STREET	278I (B.Q.E.)		A		2	S	3/12/2014	4.681	F	5,300	\$23,452,500	401		
2230630	O	35TH STREET	278I (B.Q.E.)		A		4	S	3/14/2014	4.667	F	9,000	\$39,825,000	401		
2230640	O	32ND STREET	278I (B.Q.E.)		A		2	S	6/6/2013	4.875	F	8,100	\$35,842,500	401		
2230657	O	31ST STREET	278I (B.Q.E.)		A		2	S	12/5/2012	4.569	F	9,500	\$42,037,500	401		
2230690	O	278I NORTHBOUND (BOE WEST LEG)	32ND AVENUE		A		1	S	6/2/2014	6.407	VG	4,080	\$18,054,000	401		
2230700	O	278I NORTHBOUND (BOE EAST LEG)	32ND AVENUE (TO BOE WEST LEG)		A		8	S	11/5/2014	6.352	VG	31,600	\$139,830,000	401	403	
2230710	O	278I SOUTHBOUND (BOE WEST LEG)	32ND AVENUE		A		1	S	6/28/2013	6.424	VG	5,240	\$23,187,000	401		
2230720	O	278I SOUTHBOUND (BOE EAST LEG)	278I NORTHBOUND (BOE WEST LEG)		A		3	S	6/25/2013	6.182	VG	20,896	\$92,464,800	401		
2230730	O	31ST AVENUE	278I NORTHBOUND (BOE WEST LEG)		A		1	S	6/25/2013	6.217	VG	5,875	\$25,996,875	401		
2230740	O	278I SOUTHBOUND (BOE WEST LEG)	31ST AVENUE		A		1	S	6/27/2013	6.217	VG	5,246	\$23,213,550	401		
2230750	O	278I SOUTHBOUND (BOE EAST LEG)	31ST AVENUE		A		1	S	6/27/2013	6.508	VG	4,221	\$18,677,925	401	403	
2230760	O	278I NORTHBOUND (BOE EAST LEG)	31ST AVENUE		A		1	S	7/23/2014	6.356	VG	4,161	\$18,412,425	401		
2230770	O	278I (BOE WEST LEG)	30TH AVENUE		A		1	S	5/24/2013	6.322	VG	6,199	\$27,430,575	401		
2230790	O	BULOVA AVENUE	278I (BOE WEST LEG)		A		2	S	4/4/2014	5.278	G	3,300	\$14,602,500	401		
2230800	O	49TH STREET	278I (BOE WEST LEG)		A		2	S	4/7/2014	5.278	G	4,900	\$21,682,500	401		
2230810	O	ASTORIA BOULEVARD EASTBOUND	278I (BOE WEST LEG)		A		4	S	3/14/2014	4.279	F	8,200	\$36,285,000	401		
2230820	O	47TH STREET	GCP		A		2	S	4/28/2014	4.889	F	5,700	\$25,222,500	401		
2230830	O	278I NORTHBOUND (BOE WEST LEG)	GCP		A		2	S	4/28/2014	4.583	F	7,600	\$33,630,000	401		
2230840	O	44TH STREET	GCP		A		2	S	5/13/2014	4.764	F	5,000	\$22,125,000	401		
2230890	O	49TH STREET	GCP		A		2	S	5/15/2014	4.444	F	6,350	\$28,098,750	401		
224004G	O	TO NY FROM 11TH STREET	TERRAIN (CHAMBER)		OE		36	S	7/25/2014	5.268	G	8,360	\$36,993,000	401	402	
2240660	O	RIKERS ISLAND BRIDGE	RIKERS ISLAND CHANNEL		WO		56	S	9/26/2013	4.211	F	183,100	\$810,217,500	401	480	
1247280	O	51ST AVENUE PEDESTRIAN BRIDGE (2247280)	LIRR MAIN LINE	L	O-PED		5	C	10/8/2013	3.018	F	700	\$3,097,500	402		
2230520	O	65TH PLACE	278I (B.Q.E.)		A		2	S	2/6/2014	5.889	G	11,668	\$51,630,900	402		
2230530	O	QUEENS BOULEVARD	278I (B.Q.E.)		A		2	S	10/22/2014	6.306	VG	25,543	\$113,027,775	402		
2230540	O	WOODSIDE AVENUE	278I (B.Q.E.)		A		1	S	1/31/2014	5.672	G	7,529	\$33,315,825	402		
2230550	O	69TH STREET	278I (B.Q.E.)		A		2	S	1/31/2014	5.263	G	12,600	\$55,755,000	402		
2230560	O	70TH STREET	278I (B.Q.E.)		A		2	S	10/22/2014	6.556	VG	8,580	\$37,966,500	402		
2230570	O	41ST AVENUE	278I (B.Q.E.)		A		2	S	10/22/2014	6.735	VG	8,580	\$37,966,500	402		
2230587	O	ROOSEVELT AVENUE	278I (B.Q.E.)		A		2	S	9/24/2013	5.889	G	11,022	\$48,772,350	402		

**INVENTORY SORTED BY BORO AND COMMUNITY BOARD DISTRICT**

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2230590	O	BROADWAY	278I (B.Q.E.)		A		2	S	12/6/2012	5.789	G	16,000	\$70,800,000	402		
2230669	O	278I (B.Q.E.)	35TH AVENUE		A		1	S	8/2/2013	6.390	VG	13,135	\$58,122,375	402		
2230679	O	278I (B.Q.E.)	34TH AVENUE		A		1	S	5/17/2013	6.068	VG	7,793	\$34,484,025	402		
2230680	O	278I (B.Q.E.)	NORTHERN BOULEVARD		A		1	S	11/5/2014	6.016	VG	27,011	\$119,523,675	402	401	
2230869	O	QUEENS BOULEVARD	ACCESS RD BOE SOUTHBOUND		A		1	S	9/30/2014	5.659	G	7,900	\$34,957,500	402		
224004E	O	TO NY FROM THOMSON AVENUE	JACKSON AVENUE	L	OE		94	S	11/26/2014	4.679	F	104,600	\$462,855,000	402		
224004F	O	TO NY FROM 21ST STREET	21ST STREET		OE		63	S	11/7/2014	4.712	F	63,310	\$280,146,750	402	401	
224004H	O	TO 21ST STREET FROM NY	22ND STREET		OE		43	S	10/13/2014	4.366	F	48,100	\$212,842,500	402		
224004I	O	TO THOMSON AVENUE FROM NY	JACKSON AVENUE	L	OE		39	S	11/21/2014	5.148	G	59,100	\$261,517,500	402		
2240410	O	BORDEN AVENUE	DUTCH KILLS		WMO		2	S	7/5/2013	4.792	F	8,400	\$37,170,000	402		
2240450	O	HUNTERS POINT AVENUE	DUTCH KILLS		WMO		4	S	5/30/2014	5.056	G	12,168	\$53,843,400	402		
2247120	O	WOODSIDE AVENUE	LIRR MAIN LINE	L	O		3	S	9/19/2014	4.413	F	14,900	\$65,932,500	402		
2247150	O	65TH STREET	LIRR MAIN LINE	L	O		3	S	9/5/2013	6.375	VG	6,344	\$28,072,200	402		
2247160	O	65TH PLACE	LIRR MAIN LINE	L	O		3	S	9/5/2013	6.441	VG	8,381	\$37,085,925	402		
2247260	O	JACKSON AVENUE	LIRR MONTAUK DIV	L	O		1	S	10/8/2014	5.550	G	4,517	\$19,987,725	402		
2247270	O	21ST STREET	LIRR N SHORE YARD	L	O		6	S	9/11/2013	5.153	G	17,590	\$77,835,750	402		
2247290	O	49TH AVENUE	LIRR,AMTRAK	L	O		5	S	11/26/2014	3.819	F	20,400	\$90,270,000	402		
2247300	O	THOMPSON AVENUE	AMTRAK & LIRR YARD	AL	O		14	S	12/6/2012	5.042	G	61,280	\$271,164,000	402		
2247310	O	QUEENS BOULEVARD	AMTRAK & LIRR YARD	AL	O		19	S	12/6/2012	6.268	VG	92,400	\$408,870,000	402	401	
2247320	O	HONEYWELL STREET	AMTRAK & LIRR YARD	AL	O		22	S	9/26/2013	5.903	G	99,036	\$438,234,300	402	401	
2247330	O	39TH STREET (NORTH)	SUNNYSIDE YARD	A	O		14	S	9/30/2013	6.556	VG	48,200	\$213,285,000	402	401	
2247370	O	37TH AVENUE	CSX - HELLGATE	C	O		1	S	8/1/2013	6.234	VG	6,868	\$30,390,900	402		
2247380	O	ROOSEVELT AVENUE	CSX - HELLGATE	C	O		2	S	8/1/2013	6.333	VG	7,380	\$32,656,500	402	403	404
2247390	O	41ST AVENUE	CSX - HELLGATE	C	O		2	S	8/1/2013	4.942	F	4,400	\$19,470,000	402	404	
2247400	O	WOODSIDE AVENUE	CSX TRANSPORT	C	O		1	S	8/9/2013	5.033	G	8,200	\$36,285,000	402	404	
2247410	O	43RD AVENUE	CSX TRANSPORT	C	O		1	S	8/9/2013	5.000	G	4,800	\$21,240,000	402	404	
2247420	O	44TH AVENUE	CSX TRANSPORT	C	O		1	S	8/9/2013	5.000	G	5,100	\$22,567,500	402	404	
2247430	O	45TH AVENUE	CSX TRANSPORT	C	O		1	S	8/9/2013	5.306	G	2,400	\$10,620,000	402	404	
2247640	O	39TH STREET (SOUTH)	AMTRAK & LIRR YARD	AL	O		9	S	10/7/2013	5.903	G	34,100	\$150,892,500	402		
2230780	O	278I (BOE EAST LEG)	30TH AVENUE		A		1	S	5/24/2013	6.206	VG	7,071	\$31,289,175	403	401	
1247010	O	91ST PLACE (2247010)	LIRR PT WASH BR	L	O		1	S	9/3/2013	6.500	VG	2,760	\$12,213,000	404		
2247020	O	94TH STREET PEDESTRIAN BRIDGE	LIRR PORT WASH BR	L	O-PED		5	C	9/12/2014	4.231	F	905	\$4,004,625	404		
2247180	O	GRAND AVENUE	LIRR MAIN LINE	L	O		3	S	10/1/2014	4.396	F	7,415	\$32,811,375	404		
2247190	O	55TH AVENUE PEDESTRIAN BRIDGE	LIRR MAIN LINE	L	O-PED		3	C	9/17/2014	4.120	F	1,296	\$5,734,800	404		
2248159	O	WOODHAVEN BOULEVARD	QUEENS BOULEVARD		O		2	S	7/17/2014	4.078	F	11,500	\$50,887,500	404		
1247560	O	METROPOLITAN AVENUE	LIRR - NY&ATL	LN	O		2	S	9/23/2014	3.603	F	20,900	\$92,482,500	405		
2065930	O	HAMILTON PLACE	495I (L.I.E.)		A		2	S	2/20/2014	5.528	G	11,111	\$49,166,175	405		

**INVENTORY SORTED BY BORO AND COMMUNITY BOARD DISTRICT**

BIN	BORO	FEATURE CARRIED	FEATURE CROSSED	RAIL L RO	BRIDGE TYPE	OTHER OWNER	SPA NS	RT NG SR	Inspection Date	Condition Rating	VR BL RT	DECK AREA	REPLACEMENT COST	CD	CD2	CD3
2065940	O	GRAND AVENUE	495I (L.I.E.)		A		2	S	11/11/2014	4.861	F	12,850	\$56,861,250	405		
2065950	O	69TH STREET	495I (L.I.E.)		A		2	S	7/8/2013	5.250	G	10,336	\$45,736,800	405		
2230040	O	CYPRESS HILLS STREET	JACKIE ROBINSON PARKWAY		A		1	S	3/28/2014	4.722	F	5,000	\$22,125,000	405		
2230099	O	JACKIE ROBINSON PARKWAY	CYPRESS HILLS CEMETERY		A		1	S	1/6/2014	5.444	G	4,200	\$18,585,000	405		
2230120	O	MYRTLE AVENUE	JACKIE ROBINSON PARKWAY		A		1	S	4/17/2014	5.250	G	6,400	\$28,320,000	405	482	
2247440	O	GRAND AVENUE	CSX TRANSPORT	C	O		1	S	8/13/2013	6.183	VG	3,280	\$14,514,000	405		
2247450	O	57TH AVENUE	CSX TRANSPORT	C	O		1	S	8/13/2013	5.976	G	2,248	\$9,947,400	405		
2247460	O	CALDWELL AVENUE	CSX TRANSPORT	C	O		1	S	11/10/2014	5.889	G	2,243	\$9,925,275	405		
2247470	O	ELIOT AVENUE	CSX TRANSPORT	C	O		1	S	8/15/2013	4.972	F	2,960	\$13,098,000	405		
2247480	O	JUNIPER BOULEVARD SOUTH	CSX TRANSPORT	C	O		1	S	8/16/2013	5.000	G	9,000	\$39,825,000	405		
2247490	O	69TH STREET	CSX TRANSPORT	C	O		1	S	11/10/2014	4.979	F	6,175	\$27,324,375	405		
2247500	O	METROPOLITAN AVENUE	CSX TRANSPORT	C	O		1	S	8/16/2013	4.233	F	18,650	\$82,526,250	405		
2247530	O	ANDREWS AVENUE	LIRR MONTAUK DIV	L	O		1	S	9/3/2013	7.000	VG	1,765	\$7,810,125	405		
2247540	O	60TH STREET	LIRR MONTAUK DIV	L	O		2	S	9/3/2013	5.208	G	5,340	\$23,629,500	405		
2247550	O	ELIOT AVENUE	LIRR MONTAUK DIV	L	O		2	S	8/27/2013	5.712	G	9,550	\$42,258,750	405		
2247570	O	80TH STREET	77TH AVENUE - LIRR MT	L	O		5	S	10/21/2014	4.932	F	11,725	\$51,883,125	405		
2247650	O	60TH ROAD PEDESTRIAN BRIDGE	LIRR MAIN LINE	L	O-PED		3	C	9/16/2014	5.000	G	1,200	\$5,310,000	405	406	
2248200	O	RUST STREET	FLUSHING AVENUE		O		1	S	6/21/2013	4.922	F	2,940	\$13,009,500	405		
2248220	O	SERVICE ROAD TURNAROUND	FLUSHING AVENUE		O		1	S	6/21/2013	5.078	G	2,940	\$13,009,500	405		
2248240	O	FLUSHING AVENUE SERVICE ROAD	FLUSHING AVENUE		O		1	S	6/21/2013	5.250	G	2,940	\$13,009,500	405		
2248280	O	HIGHLAND PARK PEDESTRIAN	PEDESTRIAN PATH		O-PED	P	1	C	12/31/2014	3.667	F	1,900	\$8,407,500	405		
2248300	O	71ST AVENUE	COOPER AVENUE		O		1	S	7/1/2013	4.373	F	2,800	\$12,390,000	405		
1247200	O	67TH AVENUE PEDESTRIAN BRIDGE (2247200)	LIRR MAIN LINE	L	O-PED		3	C	9/24/2014	4.219	F	1,300	\$5,752,500	406		
2066002	O	495I (2066000)	WOODHAVEN BOULEVARD		A		2	S	5/23/2013	5.620	G	25,200	\$111,510,000	406	404	
2247630	O	PEDESTRIAN BRIDGE NEAR UNION TURNPIKE	ABANDONED LIRR		O-PED		8	C	6/12/2014	4.582	F	1,500	\$6,637,500	406		
2248160	O	ELIOT AVENUE	QUEENS BOULEVARD		O		2	S	7/17/2014	4.804	F	13,785	\$60,998,625	406		
1065210	O	WHITESTONE EXPRESSWAY NORTHBOUND	BCIP		A		1	S	6/17/2014	4.656	F	2,500	\$11,062,500	407		
2055801	O	NORTHERN BOULEVARD WESTBOUND	FLUSHING RIVER		WO		40	S	11/21/2012	4.338	F	71,900	\$318,157,500	407		
2055802	O	NORTHERN BOULEVARD EASTBOUND	FLUSHING RIVER		WO		40	S	10/28/2014	4.268	F	78,894	\$349,105,950	407		
205580A	O	NORTHERN BOULEVARD WESTBOUND TO 678I SOUTHBOUND	VACANT LAND		AR		16	S	6/5/2014	5.619	G	8,600	\$38,055,000	407		
2231900	O	BCIP	TOTTEN AVENUE		A		1	S	5/12/2014	4.609	F	4,900	\$21,682,500	407		
2231910	O	UTOPIA PARKWAY	BCIP		A		2	S	3/7/2014	5.341	G	7,200	\$31,860,000	407		
2231920	O	160TH STREET	BCIP		A		2	S	6/17/2013	5.694	G	5,550	\$24,558,750	407		
2231930	O	FRANCIS LEWIS BOULEVARD	BCIP		A		3	S	2/21/2014	4.682	F	9,100	\$40,267,500	407		
2231940	O	CLINTONVILLE STREET	BCIP		A		2	S	2/21/2014	4.705	F	7,400	\$32,745,000	407		
2231950	O	150TH STREET	BCIP		A		2	S	2/21/2014	4.591	F	5,900	\$26,107,500	407		
2231960	O	149TH STREET	BCIP		A		2	S	1/29/2014	4.795	F	6,210	\$27,479,250	407		

## INVENTORY SORTED BY BORO AND COMMUNITY BOARD DISTRICT

BIN	BORO	FEATURE CARRIED	FEATURE CROSSED	RAIL L RO	BRIDGE TYPE	OTHER OWNER	SPA NS	RT NG SR	Inspection Date	Condition Rating	VR BL RT	DECK AREA	REPLACEMENT COST	CD	CD2	CD3
2231970	O	14TH AVENUE	BCIP		A		2	S	1/29/2014	4.523	F	8,100	\$35,842,500	407		
2231980	O	147TH STREET	BCIP		A		2	S	1/29/2014	4.705	F	6,300	\$27,877,500	407		
2240507	O	ROOSEVELT AVENUE	678I - FLUSHING RIVER		WA		27	S	11/7/2014	3.521	F	84,424	\$373,576,200	407	481	
2247040	O	UNION STREET	LIRR PORT WASH BR	L	O		1	S	8/22/2013	6.172	VG	3,313	\$14,660,025	407		
2247050	O	BOWNE AVENUE	LIRR PORT WASH BR	L	O		1	S	9/24/2014	5.451	G	4,974	\$22,009,950	407		
2247060	O	PARSONS BOULEVARD	LIRR PORT WASH BR	L	O		1	S	9/24/2014	4.824	F	4,200	\$18,585,000	407		
2247070	O	147TH STREET	LIRR PORT WASH BR	L	O		1	S	8/22/2013	5.392	G	2,800	\$12,390,000	407		
2247080	O	149TH STREET	LIRR PORT WASH BR	L	O		1	S	10/31/2014	4.776	F	4,100	\$18,142,500	407		
2247090	O	149TH PLACE	LIRR PORT WASH BR	L	O		2	S	8/21/2013	5.000	G	4,300	\$19,027,500	407		
2247100	O	150TH STREET	LIRR PORT WASH BR	L	O		2	S	8/21/2013	6.029	VG	7,830	\$34,647,750	407		
2247110	O	MURRAY STREET	LIRR PORT WASH BR	L	O		1	S	8/21/2013	5.222	G	4,000	\$17,700,000	407		
2248090	O	FLUSHING MEADOW PARK PEDESTRIAN	COLLEGE POINT BOULEVARD		O-PED	P	3	C	3/24/2014	4.639	F	8,400	\$37,170,000	407		
2266160	O	678I SOUTHBOUND TO BCIP EASTBOUND	ACCESS ROAD FROM 678I - BCIP		A		1	S	6/17/2014	3.781	F	2,300	\$10,177,500	407		
7705510	O	167TH STREET PEDESTRIAN BRIDGE	LIRR PORT WASH BR	L	O-PED		3	C	9/11/2014	4.000	F	840	\$3,717,000	407		
2248059	O	MOTOR PARKWAY (PEDESTRIAN)	FRANCIS LEWIS BOULEVARD		O-PED	P	2	C	6/13/2014	4.528	F	2,800	\$12,390,000	408		
2248080	O	MOTOR PARKWAY (PEDESTRIAN)	HOLLIS COURT BOULEVARD		O-PED	P	3	C	11/18/2014	4.672	F	2,700	\$11,947,500	408		
2248100	O	MOTOR PARKWAY (PEDESTRIAN)	73RD AVENUE		O-PED	P	3	C	2/11/2014	4.672	F	2,600	\$11,505,000	408		
2267160	O	ROOSEVELT AVENUE	SHEA ROAD		O		4	S	7/29/2013	4.873	F	7,280	\$32,214,000	408		
2267199	O	FRANCIS LEWIS BOULEVARD	CUNNINGHAM PARK ROAD		O		1	S	5/13/2013	5.033	G	7,085	\$31,351,125	408		
2230209	O	QUEENS BOULEVARD	JACKIE ROBINSON PARKWAY	T	A		5	S	6/9/2014	4.841	F	37,700	\$166,822,500	409		
2247220	O	80TH ROAD	LIRR MAIN LINE	L	O		3	S	8/30/2013	4.794	F	4,100	\$18,142,500	409		
2247230	O	82ND AVENUE	LIRR MAIN LINE	L	O		3	S	8/30/2013	5.311	G	4,100	\$18,142,500	409		
2247240	O	LEFFERTS BOULEVARD	LIRR MAIN LINE	L	O		3	S	8/30/2013	5.806	G	5,460	\$24,160,500	409		
2247590	O	FOREST PARK DRIVE	LIRR MONTAUK DIV	L	O	P	5	S	9/22/2014	5.158	G	6,000	\$26,550,000	409		
2247600	O	PARK LANE SOUTH	LIRR MONTAUK DIV	L	O		1	S	9/22/2014	6.983	VG	3,024	\$13,381,200	409	482	
2247660	O	FOREST PARK DRIVE	ABANDONED LIRR		O	P	6	S	2/21/2014	4.524	F	10,000	\$44,250,000	409		
2248019	O	WOODHAVEN BOULEVARD	ATLANTIC AVENUE		O		3	S	3/26/2014	4.208	F	19,400	\$85,845,000	409		
2248299	O	JACKIE ROBINSON PARKWAY-UNION TURNPIKE	AUSTIN STREET		O		1	S	5/23/2014	4.806	F	5,900	\$26,107,500	409	406	
2248340	O	FOREST PARK DRIVE	MYRTLE AVENUE		O	P	3	S	5/24/2013	4.984	F	5,100	\$22,567,500	409		
2231559	O	CROSS BAY BOULEVARD	BSHP		A		4	S	5/30/2014	5.083	G	23,205	\$102,682,125	410		
2231560	O	SOUTH CONDUIT BOULEVARD	BSOP		A		2	S	6/16/2014	5.268	G	15,776	\$69,808,800	410		
2231570	O	COHANCY STREET	BSOP		A		2	S	4/17/2014	4.395	F	6,400	\$28,320,000	410		
2231590	O	130TH STREET	BSOP		A		2	S	1/30/2014	4.659	F	6,800	\$30,090,000	410		
2240650	O	163RD AVENUE PEDESTRIAN BRIDGE	HAWTREE BASIN		WO-PED		13	C	5/12/2014	4.037	F	5,000	\$22,125,000	410		
2248020	O	WHITELAW PEDESTRIAN BRIDGE	CONDUIT AVENUE		O-PED		7	C	10/17/2014	4.225	F	5,500	\$24,337,500	410		
2248039	O	CROSS BAY BOULEVARD	NASSAU EXPRESSWAY - ROUTE 27		O		2	S	5/31/2013	6.208	VG	16,544	\$73,207,200	410		
2248040	O	RAMP TO LINDEN BOULEVARD	SOUTH CONDUIT AVENUE		O		1	S	5/15/2014	5.200	G	3,352	\$14,832,600	410		

**INVENTORY SORTED BY BORO AND COMMUNITY BOARD DISTRICT**

BIN	BORO	FEATURE CARRIED	FEATURE CROSSED	RAIL RO	BRIDGE TYPE	OTHER OWNER	SPANS	RT NG SR	Inspection Date	Condition Rating	VR BL RT	DECK AREA	REPLACEMENT COST	CD	CD2	CD3
2248250	O	102ND STREET	HAWTREE BASIN		WO		3	S	7/18/2013	6.015	VG	4,900	\$21,682,500	410		
2231860	O	WEST ALLEY ROAD	BCIP		A		2	S	7/17/2013	5.368	G	7,200	\$31,860,000	411		
2231870	O	NORTHERN BOULEVARD	BCIP		A		2	S	7/14/2014	5.764	G	9,400	\$41,595,000	411		
2231880	O	CROCHERON PARK PEDESTRIAN	BCIP		A-PED	P	9	C	5/13/2014	3.954	F	2,300	\$10,177,500	411		
2231890	O	28TH AVENUE PEDESTRIAN BRIDGE	BCIP		A-PED	P	24	C	6/4/2014	4.615	F	7,600	\$33,630,000	411		
2240440	O	NORTHERN BOULEVARD	ALLEY CREEK		WO		2	S	6/17/2014	4.681	F	8,300	\$36,727,500	411		
2247130	O	CORPORAL KENNEDY STREET	LIRR PORT WASH BR	L	O		1	S	9/5/2013	6.157	VG	3,379	\$14,952,075	411		
2247140	O	BELL BOULEVARD	LIRR PORT WASH BR	L	O		1	S	9/5/2013	5.780	G	4,320	\$19,116,000	411		
2247170	O	DOUGLASTON PARKWAY	LIRR PORT WASH BR	L	O		3	S	10/1/2014	4.542	F	6,300	\$27,877,500	411		
2247680	O	221ST STREET	LIRR PORT WASH BR	L	O		3	S	8/22/2013	5.926	G	6,050	\$26,771,250	411		
2248060	O	MOTOR PARKWAY (PEDESTRIAN)	BELL BOULEVARD		O-PED	P	2	C	6/29/2014	4.403	F	2,650	\$11,726,250	411		
2248070	O	MOTOR PARKWAY (PEDESTRIAN)	SPRINGFIELD BOULEVARD		O-PED	P	3	C	6/17/2014	3.639	F	2,900	\$12,832,500	411		
2266129	O	DOUGLASTON PARKWAY	BCIP SOUTHBOUND		A		1	S	3/10/2014	4.592	F	4,400	\$19,470,000	411		
2266139	O	DOUGLASTON PARKWAY	BCIP NORTHBOUND		A		1	S	3/12/2014	4.653	F	6,400	\$28,320,000	411		
7703720	O	216TH STREET PEDESTRIAN BRIDGE	LIRR PORT WASH BR	L	O-PED		6	C	9/22/2014	3.111	F	960	\$4,248,000	411		
2231610	O	GUY R. BREWER BOULEVARD	BSOP		A		4	S	5/20/2013	6.222	VG	12,342	\$54,613,350	413		
2231620	O	FARMERS BOULEVARD	BSOP		A		2	S	4/25/2014	4.477	F	6,400	\$28,320,000	413		
2231630	O	SPRINGFIELD BOULEVARD	BSOP		A		2	S	4/25/2014	4.591	F	8,500	\$37,612,500	413		
2231640	O	225TH STREET	BSOP		A		2	S	5/15/2014	4.614	F	7,000	\$30,975,000	413		
2231650	O	SUNRISE HWY WESTBOUND	BLP EASTBOUND		A		1	S	3/21/2014	4.262	F	4,100	\$18,142,500	413		
2231660	O	SUNRISE HWY WESTBOUND	BLP WESTBOUND		A		2	S	2/25/2014	4.565	F	5,350	\$23,673,750	413		
2231670	O	NORTH CONDUIT AVENUE WESTBOUND	BLP EASTBOUND		A		1	S	1/13/2014	4.917	F	4,000	\$17,700,000	413		
2231680	O	NORTH CONDUIT AVENUE WESTBOUND	BLP WESTBOUND		A		2	S	1/20/2014	4.932	F	6,500	\$28,762,500	413		
2231690	O	FRANCIS LEWIS BOULEVARD	BLP EASTBOUND		A		1	S	3/17/2014	5.033	G	6,000	\$26,550,000	413		
2231700	O	FRANCIS LEWIS BOULEVARD	BLP WESTBOUND		A		1	S	3/18/2014	4.700	F	6,000	\$26,550,000	413		
2231710	O	MERRICK BOULEVARD	BLP NORTHBOUND		A		1	S	2/11/2014	4.467	F	6,000	\$26,550,000	413		
2231720	O	MERRICK BOULEVARD	BLP SOUTHBOUND		A		1	S	2/12/2014	4.200	F	6,000	\$26,550,000	413		
2231730	O	130TH AVENUE	BLP NORTHBOUND		A		1	S	1/10/2014	5.133	G	4,400	\$19,470,000	413		
2231740	O	130TH AVENUE	BLP SOUTHBOUND		A		1	S	1/13/2014	4.700	F	4,400	\$19,470,000	413		
2231750	O	LINDEN BOULEVARD	BCIP		A		2	S	2/25/2014	4.432	F	6,700	\$29,647,500	413		
2231760	O	BCIP	DUTCH BROADWAY-115TH AVENUE		A		1	S	2/28/2014	4.233	F	7,300	\$32,302,500	413		
2231770	O	BELMONT PARK SOUTH RAMP	BCIP		A	P	1	S	2/26/2014	4.781	F	3,200	\$14,160,000	413		
2231780	O	HEMPSTEAD AVENUE	BCIP		A		2	S	2/6/2014	4.000	F	14,200	\$62,835,000	413		
2231790	O	BELMONT PARK NORTH RAMP	BCIP		A	P	1	S	1/12/2014	4.563	F	3,400	\$15,045,000	413		
2231800	O	SUPERIOR ROAD	BCIP		A		2	S	4/1/2014	4.682	F	7,000	\$30,975,000	413		
2231819	O	JAMAICA AVENUE	BCIP		A		2	S	3/19/2014	4.773	F	11,500	\$50,887,500	413		
2231829	O	BRADDOCK AVENUE	BCIP		A		2	S	3/19/2014	4.886	F	10,600	\$46,905,000	413		

**INVENTORY SORTED BY BORO AND COMMUNITY BOARD DISTRICT**

BIN	BORO	FEATURE CARRIED	FEATURE CROSSED	RAIL L RO	BRIDGE TYPE	OTHER OWNER	SPA NS	RT NG SR	Inspection Date	Condition Rating	VR BL RT	DECK AREA	REPLACEMENT COST	CD	CD2	CD3
2231840	O	HILLSIDE AVENUE	BCIP		A		2	S	3/18/2014	4.211	F	9,672	\$42,798,600	413		
2231850	O	UNION TURNPIKE	BCIP		A		2	S	3/19/2014	4.409	F	13,600	\$60,180,000	413		
2248110	O	MOTOR PARKWAY (PEDESTRIAN)	ALLEY PARK PEDESTRIAN WALK		O-PED	P	1	C	6/17/2014	4.056	F	1,000	\$4,425,000	413		
2248129	O	UNION TURNPIKE	CREEDMOORE HOSPITAL ROAD		O		1	S	6/7/2013	4.867	F	3,500	\$15,487,500	413		
2266149	O	HEMPSTEAD AVENUE	BCIP RAMP NORTHBOUND		A		2	S	3/12/2014	4.190	F	9,500	\$42,037,500	413		
2266770	O	BCIP	LAURELTON PARKWAY		A		1	S	3/7/2014	4.972	F	9,508	\$42,072,900	413		
2268770	O	SPRINGFIELD BOULEVARD	EQUESTRIAN PATH (ABANDONED)		O		1	S	5/9/2013	5.000	G	1,470	\$6,504,750	413		
2300130	O	ROCKAWAY BOULEVARD	HOOK CREEK		WO		3	S	7/15/2013	6.271	VG	18,302	\$80,986,350	413		
Q00002	O	BCIP	PATH OPPOSITE 88TH ROAD		A		1	C	6/11/2014	4.667	F	1,272	\$5,628,600	413		
2248130	O	FLUSHING MEADOW PARK PEDESTRIAN	WILLOW LAKE & 76TH ROAD		WO-PED	P	4	C	4/20/2002	1.000	C	1,891	\$8,367,675	481		
2248140	O	FLUSHING MEADW PARK ROAD	STREAM NORTH OF LIE		WO	P	5	S	7/31/2013	4.481	F	4,100	\$18,142,500	481		
2248260	O	MEADOW LAKE BRIDGE	MEADOW LAKE		WO	P	5	S	4/29/2014	4.458	F	4,200	\$18,585,000	481		
2248379	O	BOATHOUSE BRIDGE	AQUACADE LAKE		WO	P	5	S	8/1/2013	4.296	F	6,300	\$27,877,500	481		
2230179	O	JACKIE ROBINSON PARKWAY	METROPOLITAN AVENUE		A		2	S	4/22/2014	5.286	G	8,673	\$38,378,025	482		
2230180	O	UNION TURNPIKE	JACKIE ROBINSON PARKWAY		A		1	S	1/27/2014	5.672	G	5,359	\$23,713,575	482		
2230190	O	MARKWOOD ROAD	JACKIE ROBINSON PARKWAY		A		1	S	1/27/2014	5.167	G	4,400	\$19,470,000	482	406	
2247620	O	MYRTLE AVENUE	ABANDONED LIRR		O		3	S	1/2/2014	5.028	G	6,725	\$29,758,125	482	406	
2248369	O	ROCKAWAY BOULEVARD	THURSTON BASIN		WO		2	S	7/16/2013	5.474	G	6,000	\$26,550,000	483	413	
2248230	O	BEACH CHANNEL DRIVE WESTBOUND	BEACH CHANNEL DRIVE EASTBOUND		O		1	S	6/18/2013	4.400	F	3,600	\$15,930,000	484		
2249040	R	TOMPKINS AVENUE	B&O RR (ABANDONED)		O		1	S	4/4/2014	5.953	G	5,096	\$22,549,800	501		
2249070	R	JOHN STREET PEDESTRIAN BRIDGE	B&O RR (ABANDONED)	O	O-PED		2	C	8/15/2014	5.423	G	1,050	\$4,646,250	501		
2249090	R	MORNINGSTAR ROAD	B&O RR (ABANDONED)	O	O		4	S	5/21/2013	4.898	F	7,900	\$34,957,500	501		
2249100	R	GRANITE AVENUE	B&O RR (ABANDONED)	O	O		4	S	2/4/2014	5.966	G	7,300	\$32,302,500	501		
2249110	R	LAKE AVENUE	B&O RR (ABANDONED)	O	O		3	S	4/18/2014	5.148	G	5,900	\$26,107,500	501		
2249120	R	SIMONSON AVENUE	B&O RR (ABANDONED)	O	O		3	S	5/15/2013	5.852	G	5,819	\$25,749,075	501		
2249130	R	VAN NAME AVENUE	B&O RR (ABANDONED)	O	O		3	S	4/16/2014	5.186	G	5,474	\$24,222,450	501		
2249140	R	VAN PELT AVENUE	B&O RR (ABANDONED)	O	O		3	S	5/16/2013	5.576	G	5,000	\$22,125,000	501		
2249160	R	DE HART AVENUE	B&O RR (ABANDONED)	O	O		4	S	5/15/2013	6.389	VG	6,700	\$29,647,500	501		
2249170	R	UNION AVENUE	B&O RR (ABANDONED)	O	O		4	S	5/14/2013	5.315	G	6,500	\$28,762,500	501		
2249180	R	HARBOR ROAD	CONRAIL - EX B&O RR	C	O		4	S	9/16/2013	6.000	G	5,778	\$25,567,650	501		
2249200	R	SOUTH AVENUE	ARLINGTON YARD	C	O		3	S	9/17/2013	6.527	VG	8,500	\$37,612,500	501		
2249510	R	TOMPKINS AVENUE	WILLOW AVENUE, SIRT	S	O		2	S	10/17/2014	5.269	G	5,378	\$23,797,650	501		
2249520	R	HANNAH STREET	SIRT SOUTH SHORE	S	O		10	S	10/18/2013	4.966	F	10,020	\$44,338,500	501		
2249530	R	MINTHORNE STREET PEDESTRIAN BRIDGE	SIRT SOUTH SHORE	S	O-PED		26	C	3/13/2014	4.736	F	6,000	\$26,550,000	501		
2249710	R	WEST FOOTBRIDGE	CLOVE LAKE		WO-PED	P	2	C	4/28/2014	3.857	F	900	\$3,982,500	501		
2249720	R	EAST FOOTBRIDGE	CLOVE LAKE		WO-PED	P	2	C	4/28/2014	4.371	F	900	\$3,982,500	501		
2249730	R	BRIDGE OVER DAM	NORTH END CLOVE LAKE		WO-PED	P	1	C	5/6/2014	3.351	F	1,000	\$4,425,000	501		

## INVENTORY SORTED BY BORO AND COMMUNITY BOARD DISTRICT

BIN	BORO	FEATURE CARRIED	FEATURE CROSSED	RAIL RO	BRIDGE TYPE	OTHER OWNER	SPANS	RT NG SR	Inspection Date	Condition Rating	VR BL RT	DECK AREA	REPLACEMENT COST	CD	CD2	CD3
2249760	R	MARTLINGS AVENUE	RICHMOND LAKE DAM		WO		2	S	6/24/2013	4.467	F	7,000	\$30,975,000	501		
2249770	R	SOUTH OF BROOKS LAKE	STREAM IN PARK		WO-PED	P	3	C	11/26/2013	4.946	F	700	\$3,097,500	501		
2249780	R	FOOTBRIDGE	BROOKS LAKE DAM		WO-PED	P	1	C	5/19/2014	3.433	F	800	\$3,540,000	501		
2249790	R	FOOTBRIDGE SOUTH OF FOREST AVENUE	STREAM IN PARK		WO-PED	P	3	C	10/21/2014	4.651	F	700	\$3,097,500	501		
2249800	R	FOREST AVENUE	CLOVE LAKES PARK STREAM		WO	P	1	S	11/6/2013	4.567	F	1,600	\$7,080,000	501		
2249840	R	TOMPKINS AVENUE	GREENFIELD AVENUE		O		1	S	3/10/2014	4.638	F	2,690	\$11,903,250	501		
2269730	R	PARKING EXIT RAMP	SIRT	S	O	F	10	S	11/7/2014	6.097	VG	20,727	\$91,716,975	501		
2269740	R	BUS STATION NORTH	SIRT	S	O	F	12	S	11/2/2014	5.600	G	64,605	\$285,877,125	501		
2269750	R	BUS STATION SOUTH	SIRT	S	O	F	12	S	11/2/2014	5.280	G	154,688	\$684,494,400	501		
2269760	R	NORTH RAMP	SIRT	S	O	F	2	S	10/22/2014	6.431	VG	6,000	\$26,550,000	501		
2269770	R	BUS STATION ENTRANCE RAMP	SIRT	S	O	F	19	S	10/11/2013	5.611	G	39,333	\$174,048,525	501		
2269780	R	PARKING ENTRANCE RAMP	SIRT	S	O	F	3	S	11/7/2014	5.889	G	8,589	\$38,006,325	501		
2269790	R	BUS STATION EXIT RAMP	SIRT	S	O	F	7	S	11/4/2014	5.167	G	28,721	\$127,090,425	501		
2270170	R	STATEN ISLAND FERRY PEDESTRIAN BRIDGE	PARKING LOT EXIT ROADWAY		O-PED	F	5	C	7/28/2014	5.583	G	2,917	\$12,907,725	501		
2270180	R	BOROUGH PLACE - RAMP A	STATEN ISLAND RAILWAY	S	O	F	1	S	5/9/2014	6.594	VG	1,870	\$8,274,750	501		
2240350	R	RICHMOND AVENUE	RICHMOND CREEK		WO		3	S	7/1/2013	5.472	G	32,589	\$144,206,325	502		
2249400	R	BEACH AVENUE	SIRT SOUTH SHORE	S	O		2	S	8/19/2013	5.364	G	3,700	\$16,372,500	502		
2249410	R	ROSS AVENUE	SIRT SOUTH SHORE	S	O		2	S	8/20/2013	5.379	G	3,800	\$16,815,000	502		
2249420	R	ROSE AVENUE	SIRT SOUTH SHORE	S	O		2	S	8/21/2013	5.258	G	3,800	\$16,815,000	502		
2249430	R	NEW DORP LANE	SIRT SOUTH SHORE	S	O		2	S	9/9/2013	4.958	F	7,600	\$33,630,000	502		
2249440	R	BANCROFT AVENUE	SIRT SOUTH SHORE	S	O		3	S	10/9/2013	5.393	G	5,900	\$26,107,500	502		
2249450	R	FREMONT AVENUE PEDESTRIAN BRIDGE	SIRT SOUTH SHORE	S	O-PED		3	C	3/12/2014	4.073	F	800	\$3,540,000	502		
2249460	R	LINCOLN AVENUE	SIRT SOUTH SHORE	S	O		1	S	9/10/2013	5.190	G	4,500	\$19,912,500	502		
2249470	R	MIDLAND AVENUE	SIRT SOUTH SHORE	S	O		1	S	10/29/2013	5.466	G	3,000	\$13,275,000	502		
2249480	R	FINGERBOARD ROAD	SIRT SOUTH SHORE	S	O		2	S	9/26/2013	6.431	VG	5,100	\$22,567,500	502		
2249490	R	CLOVE ROAD	SIRT SOUTH SHORE	S	O		3	S	10/16/2014	5.778	G	5,104	\$22,585,200	502		
2249860	R	SLATER BOULEVARD	NEW CREEK		WO		1	S	5/17/2013	5.510	G	2,037	\$9,013,725	502		
2249870	R	TRAVIS AVENUE	MAIN CREEK		WO		1	S	10/16/2013	5.483	G	1,700	\$7,522,500	502		
2249880	R	CHELSEA ROAD	SAWMILL CREEK		WO		1	S	5/21/2013	6.633	VG	2,205	\$9,757,125	502		
2249210	R	MAIN STREET PEDESTRIAN BRIDGE	SIRT SOUTH SHORE	S	O-PED		9	C	3/5/2014	4.123	F	400	\$1,770,000	503		
2249230	R	TRACY AVENUE PEDESTRIAN BRIDGE	SIRT SOUTH SHORE	S	O-PED		9	C	3/5/2014	3.894	F	635	\$2,809,875	503		
2249240	R	ARTHUR KILL ROAD	SIRT SOUTH SHORE	S	O		1	S	10/14/2014	4.796	F	3,650	\$16,151,250	503		
2249250	R	BETHEL AVENUE PEDESTRIAN BRIDGE	SIRT SOUTH SHORE	S	O-PED		12	C	3/6/2014	3.525	F	111	\$491,175	503		
2249269	R	PAGE AVENUE	SIRT SOUTH SHORE	S	O		4	S	9/23/2013	5.806	G	30,710	\$135,891,750	503		
2249270	R	RICHMOND VALLY ROAD	SIRT SOUTH SHORE	S	O		4	S	9/13/2013	5.164	G	9,440	\$41,772,000	503		
2249280	R	CHAMP COURT PEDESTRIAN BRIDGE	SIRT SOUTH SHORE	S	O-PED		7	C	3/7/2014	4.393	F	595	\$2,632,875	503		
2249290	R	SEGUINE AVENUE	SIRT SOUTH SHORE	S	O		1	S	8/30/2013	6.016	VG	3,250	\$14,381,250	503		

**INVENTORY SORTED BY BORO AND COMMUNITY BOARD DISTRICT**

BIN	BORO	FEATURE CARRIED	FEATURE CROSSED	RAIL L RO	BRIDGE TYPE	OTHER OWNER	SPA NS	RT NG SR	Inspection Date	Condition Rating	VR BL RT	DECK AREA	REPLACEMENT COST	CD	CD2	CD3
2249300	R	HUGUENOT AVENUE	SIRT SOUTH SHORE	S	O		2	S	9/24/2013	4.788	F	4,900	\$21,682,500	503		
2249320	R	ALBEE AVENUE	SIRT SOUTH SHORE	S	O		3	S	9/25/2013	4.689	F	6,500	\$28,762,500	503		
2249330	R	ANNADALE ROAD	SIRT SOUTH SHORE	S	O		1	S	8/23/2013	6.233	VG	3,540	\$15,664,500	503		
2249350	R	NELSON AVENUE PEDESTRIAN BRIDGE	SIRT SOUTH SHORE	S	O-PED		3	C	3/10/2014	4.115	F	300	\$1,327,500	503		
2249360	R	GIFFORDS LANE	SIRT SOUTH SHORE	S	O		1	S	10/15/2014	5.625	G	3,042	\$13,460,850	503		
2249370	R	GREAVES AVENUE	SIRT SOUTH SHORE	S	O		1	S	8/22/2013	6.533	VG	2,650	\$11,726,250	503		
2249380	R	GUYON AVENUE	SIRT SOUTH SHORE	S	O		3	S	10/7/2013	4.770	F	6,900	\$30,532,500	503		
2249390	R	CEDARVIEW AVENUE PEDESTRIAN BRIDGE	SIRT SOUTH SHORE	S	O-PED		5	C	3/11/2014	3.615	F	625	\$2,765,625	503		
2249580	R	BELFIELD AVENUE PEDESTRIAN BRIDGE	SIRT SOUTH SHORE	S	O-PED		5	C	3/14/2014	3.980	F	400	\$1,770,000	503		
2249810	R	HYLAN BOULEVARD	LEMON CREEK		WO		1	S	3/10/2014	6.172	VG	11,400	\$50,445,000	503		
2249820	R	ARTHUR KILL ROAD	ARTHUR KILL STREAM		WO		1	S	5/20/2013	4.184	F	1,500	\$6,637,500	503		
2268920	R	AMBOY ROAD	LEMON CREEK		WO		1	S	3/10/2014	6.333	VG	1,310	\$5,796,750	503		
788 OPEN BRIDGES							OPEN SPANS 4,339		OPEN SF			14,590,227	64,480,843,350	ALL		



**INVENTORY SORTED BY FEATURE CARRIED**

BIN	BORO	FEATURE CARRIED	FEATURE CROSSED	RAIL L RO	BRIDGE TYPE	OTHER OWNER	SPA NS	RT NG SR	Inspection Date	Condition Rating	VR BL RT	DECK AREA	REPLACEMENT COST	CD	CD2	CD3
2243310	K	2ND AVENUE	LIRR BAY RIDGE	N	O		2	S	10/7/2014	6.208	VG	17,751	\$78,548,175	310		
2240310	K	THIRD AVENUE	GOWANUS CANAL		WO		1	S	6/6/2013	6.633	VG	3,200	\$14,160,000	306		
2243320	K	3RD AVENUE	LIRR BAY RIDGE	N	O		4	S	9/17/2013	4.917	F	17,230	\$76,242,750	310		
2241040	B	THIRD AVENUE	CSX PT MORRIS - (ABANDONED)	C	O		1	S	7/3/2014	4.563	F	2,700	\$11,947,500	201	203	
2244160	K	3RD AVENUE	SHORE ROAD DRIVE		O		1	S	6/14/2013	6.727	VG	4,360	\$19,293,000	310		
2240069	BM	THIRD AVENUE BRIDGE	HARLEM RIVER		WMO		14	S	9/4/2014	5.789	G	100,232	\$443,526,600	111	201	
2240250	K	THIRD STREET	GOWANUS CANAL		WMO		5	S	5/31/2013	4.722	F	4,900	\$21,682,500	306		
2231270	K	4TH AVENUE	BSHP		A		2	S	3/21/2014	4.763	F	6,100	\$26,992,500	310		
2243330	K	4TH AVENUE	LIRR BAY RIDGE	NT	O		4	S	8/30/2013	5.597	G	13,668	\$60,480,900	310		
2243839	K	4TH AVENUE	NYCTA BMT TRACKS	T	O		1	S	8/20/2013	6.250	VG	4,440	\$19,647,000	307		
2066100	K	5TH AVENUE	27 X PROSPECT EXPRESSWAY		A		1	S	4/22/2014	5.063	G	8,800	\$38,940,000	307		
2243580	K	5TH AVENUE	LIRR & SEA BEACH	NT	O		4	S	10/27/2014	3.882	F	12,395	\$54,847,875	310		
2244480	K	5TH AVENUE	GREENWOOD CEMETERY		O		1	S	9/25/2013	5.333	G	3,600	\$15,930,000	307		
2243590	K	6TH AVENUE	LIRR & SEA BEACH	NT	O		2	S	7/16/2013	6.056	VG	14,382	\$63,640,350	310		
2243280	K	6TH AVENUE	LIRR ATLANTIC AVENUE	L	O		9	S	9/5/2014	5.431	G	12,276	\$54,321,300	302		
2243600	K	7TH AVENUE	LIRR & SEA BEACH	NT	O		7	S	10/22/2014	4.806	F	18,628	\$82,428,900	310		
2243920	K	7TH AVENUE	NYCTA BMT YARD	T	O		2	S	6/30/2014	6.042	VG	4,700	\$20,797,500	307		
2243840	K	9TH AVENUE	NYCTA BMT YARD	T	O		5	S	8/19/2013	5.736	G	12,440	\$55,047,000	312		
2243940	K	9TH AVENUE	NYCTA IND SUBWAY	T	O		5	S	8/19/2013	4.737	F	6,300	\$27,877,500	312		
2243630	K	11TH AVENUE	LIRR & SEA BEACH	NT	O		5	S	7/1/2014	5.985	G	9,700	\$42,922,500	310		
2245209	M	11TH AVENUE	AMTRAK 30 STREET BRANCH	A	O		2	S	6/4/2014	4.426	F	15,400	\$68,145,000	104		
2245010	M	11TH AVENUE VIADUCT	LIRR WEST SIDE YARD	AL	O		39	S	12/12/2014	4.056	F	149,100	\$659,767,500	104		
2243640	K	13TH AVENUE	LIRR & SEA BEACH	NT	O		5	S	7/15/2013	4.972	F	16,000	\$70,800,000	310		
2231970	Q	14TH AVENUE	BCIP		A		2	S	1/29/2014	4.523	F	8,100	\$35,842,500	407		
2243650	K	14TH AVENUE	LIRR BAY RIDGE	N	O		1	S	10/3/2014	6.167	VG	4,720	\$20,886,000	311		
2243340	K	15TH AVENUE	LIRR BAY RIDGE	N	O		1	S	10/3/2014	4.872	F	3,614	\$15,991,950	311		
2243670	K	15TH AVENUE	BMT SEA BEACH	T	O		4	S	6/24/2013	6.136	VG	16,020	\$70,888,500	311		
2243360	K	16TH AVENUE	LIRR BAY RIDGE	N	O		1	S	10/3/2014	5.350	G	4,345	\$19,226,625	311		
2243680	K	16TH AVENUE	BMT SEA BEACH	T	O		3	S	6/6/2014	5.481	G	6,816	\$30,160,800	311		
2243370	K	17TH AVENUE	LIRR BAY RIDGE	N	O		1	S	10/2/2014	4.745	F	3,406	\$15,071,550	312		
2243690	K	17TH AVENUE	BMT SEA BEACH	T	O		4	S	5/30/2014	6.173	VG	8,946	\$39,586,050	311		
2231300	K	17TH AVENUE PEDESTRIAN BRIDGE	BSHP		A-PED	P	1	C	8/14/2014	3.667	F	2,100	\$9,292,500	311		
2243380	K	18TH AVENUE	LIRR BAY RIDGE	N	O		1	S	10/2/2014	4.625	F	6,006	\$26,576,550	312		
2243700	K	18TH AVENUE	BMT SEA BEACH	T	O		1	S	7/25/2013	6.632	VG	5,200	\$23,010,000	311		
2243710	K	19TH AVENUE	BMT SEA BEACH	T	O		4	S	5/29/2014	4.237	F	4,800	\$21,240,000	311		
2243720	K	20TH AVENUE	BMT SEA BEACH	T	O		1	S	6/2/2014	6.421	VG	7,000	\$30,975,000	311		
2243820	K	21ST AVENUE	BMT SEA BEACH	T	O		4	S	7/9/2014	4.289	F	21,400	\$94,695,000	311		

### INVENTORY SORTED BY FEATURE CARRIED

BIN	BORO	FEATURE CARRIED	FEATURE CROSSED	RAIL RO	BRIDGE TYPE	OTHER OWNER	SPANS	RT NG SR	Inspection Date	Condition Rating	VR BL RT	DECK AREA	REPLACEMENT COST	CD	CD2	CD3
2247270	O	21ST STREET	LIRR N SHORE YARD	L	O		6	S	9/11/2013	5.153	G	17,590	\$77,835,750	402		
224004J	M	25X TO/FROM 2ND AVENUE	NYC GARAGE		OE		14	S	4/21/2014	4.829	F	22,058	\$97,606,650	108		
2231330	K	27TH AVENUE PEDESTRIAN BRIDGE	BSHP		A-PED	P	1	C	1/27/2014	4.021	F	2,100	\$9,292,500	313		
2231890	O	28TH AVENUE PEDESTRIAN BRIDGE	BCIP		A-PED	P	24	C	6/4/2014	4.615	F	7,600	\$33,630,000	411		
2230730	O	31ST AVENUE	278I NORTHBOUND (BOE WEST LEG)		A		1	S	6/25/2013	6.217	VG	5,875	\$25,996,875	401		
2230657	O	31ST STREET	278I (B.O.E.)		A		2	S	12/5/2012	4.569	F	9,500	\$42,037,500	401		
2230640	O	32ND STREET	278I (B.O.E.)		A		2	S	6/6/2013	4.875	F	8,100	\$35,842,500	401		
2230630	O	35TH STREET	278I (B.O.E.)		A		4	S	3/14/2014	4.667	F	9,000	\$39,825,000	401		
2247370	O	37TH AVENUE	CSX - HELLGATE	C	O		1	S	8/1/2013	6.234	VG	6,868	\$30,390,900	402		
2230620	O	37TH STREET	278I (B.O.E.)		A		2	S	3/12/2014	4.681	F	5,300	\$23,452,500	401		
2247330	O	39TH STREET (NORTH)	SUNNYSIDE YARD	A	O		14	S	9/30/2013	6.556	VG	48,200	\$213,285,000	402	401	
2247640	O	39TH STREET (SOUTH)	AMTRAK & LIRR YARD	AL	O		9	S	10/7/2013	5.903	G	34,100	\$150,892,500	402		
2230570	O	41ST AVENUE	278I (B.O.E.)		A		2	S	10/22/2014	6.735	VG	8,580	\$37,966,500	402		
2247390	O	41ST AVENUE	CSX - HELLGATE	C	O		2	S	8/1/2013	4.942	F	4,400	\$19,470,000	402	404	
2247410	O	43RD AVENUE	CSX TRANSPORT	C	O		1	S	8/9/2013	5.000	G	4,800	\$21,240,000	402	404	
2247420	O	44TH AVENUE	CSX TRANSPORT	C	O		1	S	8/9/2013	5.000	G	5,100	\$22,567,500	402	404	
2230840	O	44TH STREET	GCP		A		2	S	5/13/2014	4.764	F	5,000	\$22,125,000	401		
2247430	O	45TH AVENUE	CSX TRANSPORT	C	O		1	S	8/9/2013	5.306	G	2,400	\$10,620,000	402	404	
2230820	O	47TH STREET	GCP		A		2	S	4/28/2014	4.889	F	5,700	\$25,222,500	401		
2247290	O	49TH AVENUE	LIRR AMTRAK	L	O		5	S	11/26/2014	3.819	F	20,400	\$90,270,000	402		
2230800	O	49TH STREET	278I (BOE WEST LEG)		A		2	S	4/7/2014	5.278	G	4,900	\$21,682,500	401		
2230890	O	49TH STREET	GCP		A		2	S	5/15/2014	4.444	F	6,350	\$28,098,750	401		
2066002	O	495I (2066000)	WOODHAVEN BOULEVARD		A		2	S	5/23/2013	5.620	G	25,200	\$111,510,000	406	404	
2243400	K	50TH STREET	LIRR BAY RIDGE	N	O		2	S	9/5/2013	4.731	F	7,100	\$31,417,500	312		
1247280	O	51ST AVENUE PEDESTRIAN BRIDGE (2247280)	LIRR MAIN LINE	L	O-PED		5	C	10/8/2013	3.018	F	700	\$3,097,500	402		
2243390	K	52ND STREET	LIRR BAY RIDGE	N	O		1	S	10/1/2014	6.017	VG	3,293	\$14,571,525	312		
2247190	O	55TH AVENUE PEDESTRIAN BRIDGE	LIRR MAIN LINE	L	O-PED		3	C	9/17/2014	4.120	F	1,296	\$5,734,800	404		
2247450	O	57TH AVENUE	CSX TRANSPORT	C	O		1	S	8/13/2013	5.976	G	2,248	\$9,947,400	405		
2247650	O	60TH ROAD PEDESTRIAN BRIDGE	LIRR MAIN LINE	L	O-PED		3	C	9/16/2014	5.000	G	1,200	\$5,310,000	405	406	
2243350	K	60TH STREET	LIRR BAY RIDGE	N	O		1	S	9/4/2013	6.133	VG	3,900	\$17,257,500	311		
2247540	O	60TH STREET	LIRR MONTAUK DIV	L	O		2	S	9/3/2013	5.208	G	5,340	\$23,629,500	405		
2230520	O	65TH PLACE	278I (B.O.E.)		A		2	S	2/6/2014	5.889	G	11,668	\$51,630,900	402		
2247160	O	65TH PLACE	LIRR MAIN LINE	L	O		3	S	9/5/2013	6.441	VG	8,381	\$37,085,925	402		
2243730	K	65TH STREET	BMT SEA BEACH	T	O		4	S	5/23/2014	5.132	G	12,000	\$53,100,000	311		
2247150	O	65TH STREET	LIRR MAIN LINE	L	O		3	S	9/5/2013	6.375	VG	6,344	\$28,072,200	402		
1247200	O	67TH AVENUE PEDESTRIAN BRIDGE (2247200)	LIRR MAIN LINE	L	O-PED		3	C	9/24/2014	4.219	F	1,300	\$5,752,500	406		
2065950	O	69TH STREET	495I (L.I.E.)		A		2	S	7/8/2013	5.250	G	10,336	\$45,736,800	405		

**INVENTORY SORTED BY FEATURE CARRIED**

BIN	BORO	FEATURE CARRIED	FEATURE CROSSED	RAIL RO	BRIDGE TYPE	OTHER OWNER	SPANS	RT NG SR	Inspection Date	Condition Rating	VR BL RT	DECK AREA	REPLACEMENT COST	CD	CD2	CD3
2230550	O	69TH STREET	278I (B.Q.E.)		A		2	S	1/31/2014	5.263	G	12,600	\$55,755,000	402		
2247490	O	69TH STREET	CSX TRANSPORT	C	O		1	S	11/10/2014	4.979	F	6,175	\$27,324,375	405		
2266160	O	678I SOUTHBOUND TO BCIP EASTBOUND	ACCESS ROAD FROM 678I - BCIP		A		1	S	6/17/2014	3.781	F	2,300	\$10,177,500	407		
2230560	O	70TH STREET	278I (B.Q.E.)		A		2	S	10/22/2014	6.556	VG	8,580	\$37,966,500	402		
2248300	O	71ST AVENUE	COOPER AVENUE		O		1	S	7/1/2013	4.373	F	2,800	\$12,390,000	405		
2246150	M	72ND STREET CROSS DRIVE (TERRACE BRIDGE)	PEDESTRIAN PATH TO FOUNTAIN		O	P	3	S	2/24/2014	5.786	G	7,300	\$32,302,500	164		
2246160	M	73RD STREET PEDESTRIAN BRIDGE (BOW BRIDGE)	THE LAKE		WO-PED	P	1	C	4/8/2014	3.946	F	1,700	\$7,522,500	164		
2246440	M	79TH STREET PEDESTRIAN BRIDGE	TRANSVERSE ROAD #2		O-PED	P	1	C	7/13/2014	3.926	F	5,900	\$26,107,500	164		
2267717	M	79TH STREET PEDESTRIAN PLAZA	79TH STREET BOAT BASIN GARAGE		A	P	10	S	5/10/2013	4.444	F	27,400	\$121,245,000	107		
226771B	M	79TH STREET RAMP TO GARAGE	79TH STREET BOAT BASIN GARAGE		AR	P	21	S	5/14/2014	4.452	F	8,989	\$39,776,325	107		
226771A	M	79TH STREET RAMP TO HHP	79TH STREET BOAT BASIN GARAGE		AR	P	4	S	5/8/2014	4.221	F	3,131	\$13,854,675	107		
2267718	M	79TH STREET TRAFFIC CIRCLE	79TH STREET PEDESTRIAN PLAZA		A	P	34	S	5/15/2013	3.738	F	24,130	\$106,775,250	107		
2247220	O	80TH ROAD	LIRR MAIN LINE	L	O		3	S	8/30/2013	4.794	F	4,100	\$18,142,500	409		
2247570	O	80TH STREET	77TH AVENUE - LIRR MT	L	O		5	S	10/21/2014	4.932	F	11,725	\$51,883,125	405		
2231250	K	81ST STREET PEDESTRIAN BRIDGE	BSHP		A-PED	P	5	C	3/25/2014	4.761	F	3,100	\$13,717,500	310		
2247230	O	82ND AVENUE	LIRR MAIN LINE	L	O		3	S	8/30/2013	5.311	G	4,100	\$18,142,500	409		
2243570	K	86TH STREET	BMT SEA BEACH	T	O		1	S	6/4/2014	5.797	G	12,167	\$53,838,975	313		
2243610	K	8TH AVENUE	LIRR & SEA BEACH	NT	O		2	S	7/15/2013	6.181	VG	10,834	\$47,940,450	310		
1247010	O	91ST PLACE (2247010)	LIRR PT WASH BR	L	O		1	S	9/3/2013	6.500	VG	2,760	\$12,213,000	404		
2231260	K	92ND STREET PEDESTRIAN BRIDGE	BSHP		A-PED	P	6	C	8/6/2014	3.541	F	3,000	\$13,275,000	310		
2247020	O	94TH STREET PEDESTRIAN BRIDGE	LIRR PORT WASH BR	L	O-PED		5	C	9/12/2014	4.231	F	905	\$4,004,625	404		
2248250	O	102ND STREET	HAWTREE BASIN		WO		3	S	7/18/2013	6.015	VG	4,900	\$21,682,500	410		
2231730	O	130TH AVENUE	BLP NORTHBOUND		A		1	S	1/10/2014	5.133	G	4,400	\$19,470,000	413		
2231740	O	130TH AVENUE	BLP SOUTHBOUND		A		1	S	1/13/2014	4.700	F	4,400	\$19,470,000	413		
2231590	O	130TH STREET	BSOP		A		2	S	1/30/2014	4.659	F	6,800	\$30,090,000	410		
2240089	BM	145TH STREET BRIDGE	HARLEM RIVER		WMO		8	S	8/15/2013	6.278	VG	56,700	\$250,897,500	110	204	201
2231980	O	147TH STREET	BCIP		A		2	S	1/29/2014	4.705	F	6,300	\$27,877,500	407		
2247070	O	147TH STREET	LIRR PORT WASH BR	L	O		1	S	8/22/2013	5.392	G	2,800	\$12,390,000	407		
2247090	O	149TH PLACE	LIRR PORT WASH BR	L	O		2	S	8/21/2013	5.000	G	4,300	\$19,027,500	407		
2231960	O	149TH STREET	BCIP		A		2	S	1/29/2014	4.795	F	6,210	\$27,479,250	407		
2247080	O	149TH STREET	LIRR PORT WASH BR	L	O		1	S	10/31/2014	4.776	F	4,100	\$18,142,500	407		
2231950	O	150TH STREET	BCIP		A		2	S	2/21/2014	4.591	F	5,900	\$26,107,500	407		
2247100	O	150TH STREET	LIRR PORT WASH BR	L	O		2	S	8/21/2013	6.029	VG	7,830	\$34,647,750	407		
2231920	O	160TH STREET	BCIP		A		2	S	6/17/2013	5.694	G	5,550	\$24,558,750	407		
2240650	O	163RD AVENUE PEDESTRIAN BRIDGE	HAWTREE BASIN		WO-PED		13	C	5/12/2014	4.037	F	5,000	\$22,125,000	410		
7705510	O	167TH STREET PEDESTRIAN BRIDGE	LIRR PORT WASH BR	L	O-PED		3	C	9/11/2014	4.000	F	840	\$3,717,000	407		
206672A	B	174TH STREET-NORTH PEDESTRIAN BRIDGE	895I - SHERIDAN EXPRESSWAY		A-PED		4	C	4/1/2014	4.667	F	1,800	\$7,965,000	209		

**INVENTORY SORTED BY FEATURE CARRIED**

BIN	BORO	FEATURE CARRIED	FEATURE CROSSED	RAIL RO	BRIDGE TYPE	OTHER OWNER	SPANS	RT NG SR	Inspection Date	Condition Rating	VR BL RT	DECK AREA	REPLACEMENT COST	CD	CD2	CD3
206672B	B	174TH STREET-SOUTH PEDESTRIAN BRIDGE	895I - SHERIDAN EXPRESSWAY		A-PED		4	C	4/17/2014	4.750	F	1,900	\$8,407,500	209		
2241259	B	204TH STREET PEDESTRIAN BRIDGE	METRO NORTH RR HAR	M	O-PED	P	1	C	10/20/2014	3.845	F	4,700	\$20,797,500	227	207	
7703720	Q	216TH STREET PEDESTRIAN BRIDGE	LIRR PORT WASH BR	L	O-PED		6	C	9/22/2014	3.111	F	960	\$4,248,000	411		
2247680	Q	221ST STREET	LIRR PORT WASH BR	L	O		3	S	8/22/2013	5.926	G	6,050	\$26,771,250	411		
2231640	Q	225TH STREET	BSOP		A		2	S	5/15/2014	4.614	F	7,000	\$30,975,000	413		
2266540	B	278I	BRUCKNER BOULEVARD		A		2	S	7/10/2013	4.435	F	32,900	\$145,582,500	201		
2230460	K	278I (B.Q.E.)	PEARL STREET		A		1	S	1/15/2014	5.467	G	4,500	\$19,912,500	302		
2230470	K	278I (B.Q.E.)	JAY STREET		A		1	S	1/15/2014	4.833	F	5,100	\$22,567,500	302		
2230480	K	278I (B.Q.E.)	PROSPECT STREET		A		1	S	2/21/2014	4.852	F	8,400	\$37,170,000	302		
2230490	K	278I (B.Q.E.)	SANDS STREET		A		1	S	2/27/2014	5.019	G	12,600	\$55,755,000	302		
2230500	K	278I (B.Q.E.)	RAMP TO BOE EASTBOUND		A		1	S	2/10/2014	4.967	F	1,300	\$5,752,500	302		
2230510	K	278I (B.Q.E.)	NASSAU STREET		A		6	S	7/3/2014	5.169	G	51,200	\$226,560,000	302		
2230669	Q	278I (B.Q.E.)	35TH AVENUE		A		1	S	8/2/2013	6.390	VG	13,135	\$58,122,375	402		
2230679	Q	278I (B.Q.E.)	34TH AVENUE		A		1	S	5/17/2013	6.068	VG	7,793	\$34,484,025	402		
2230680	Q	278I (B.Q.E.)	NORTHERN BOULEVARD		A		1	S	11/5/2014	6.016	VG	27,011	\$119,523,675	402	401	
2230430	K	278I (B.Q.E.) RAMP TO BROOKLYN BRIDGE	PROSPECT STREET		A		1	S	1/6/2014	5.000	G	1,100	\$4,867,500	302		
2230780	Q	278I (BOE EAST LEG)	30TH AVENUE		A		1	S	5/24/2013	6.206	VG	7,071	\$31,289,175	403	401	
2230770	Q	278I (BOE WEST LEG)	30TH AVENUE		A		1	S	5/24/2013	6.322	VG	6,199	\$27,430,575	401		
2230888	K	278I EASTBOUND (B.Q.E.)	CADMAN PLAZA / 278I WESTBOUND		A		2	S	7/28/2014	5.263	G	4,500	\$19,912,500	302		
2268498	K	278I EASTBOUND (B.Q.E.)	278I WESTBOUND (BOE) - PROMENADE		A		69	S	11/26/2014	3.754	F	133,708	\$591,657,900	302		
2268508	K	278I EASTBOUND (B.Q.E.)	278I WESTBOUND (BOE) - BROOKLYN BRIDGE		A		11	S	7/5/2013	4.103	F	20,529	\$90,840,825	302		
2268518	K	278I EASTBOUND (B.Q.E.)	278I WESTBOUND (B.Q.E.)		A		5	S	7/5/2013	4.310	F	9,275	\$41,041,875	302		
2230410	K	278I EASTBOUND (B.Q.E.)	WASHINGTON STREET		A		1	S	7/16/2014	4.500	F	2,500	\$11,062,500	302		
2230450	K	278I EASTBOUND (B.Q.E.)	ADAMS STREET		A		1	S	1/15/2014	4.933	F	2,500	\$11,062,500	302		
2230858	K	278I EASTBOUND (B.Q.E.)	JORALEMON STREET / BOE WESTBOUND		A		1	S	11/5/2013	4.619	F	5,900	\$26,107,500	302		
2230700	Q	278I NORTHBOUND (BOE EAST LEG)	32ND AVENUE (TO BOE WEST LEG)		A		8	S	11/5/2014	6.352	VG	31,600	\$139,830,000	401	403	
2230760	Q	278I NORTHBOUND (BOE EAST LEG)	31ST AVENUE		A		1	S	7/23/2014	6.356	VG	4,161	\$18,412,425	401		
2230690	Q	278I NORTHBOUND (BOE WEST LEG)	32ND AVENUE		A		1	S	6/2/2014	6.407	VG	4,080	\$18,054,000	401		
2230830	Q	278I NORTHBOUND (BOE WEST LEG)	GCP		A		2	S	4/28/2014	4.583	F	7,600	\$33,630,000	401		
2230720	Q	278I SOUTHBOUND (BOE EAST LEG)	278I NORTHBOUND (BOE WEST LEG)		A		3	S	6/25/2013	6.182	VG	20,896	\$92,464,800	401		
2230710	Q	278I SOUTHBOUND (BOE WEST LEG)	32ND AVENUE		A		1	S	6/28/2013	6.424	VG	5,240	\$23,187,000	401		
2230750	Q	278I SOUTHBOUND (BOE EAST LEG)	31ST AVENUE		A		1	S	6/27/2013	6.508	VG	4,221	\$18,677,925	401	403	
2230740	Q	278I SOUTHBOUND (BOE WEST LEG)	31ST AVENUE		A		1	S	6/27/2013	6.217	VG	5,246	\$23,213,550	401		
2230887	K	278I WESTBOUND (B.Q.E.)	CADMAN PLAZA		A		2	S	7/25/2014	4.403	F	4,500	\$19,912,500	302		
2268497	K	278I WESTBOUND (B.Q.E.)	FURMAN STREET - 278I EASTBOUND		A		45	S	8/30/2013	4.357	F	86,406	\$382,346,550	302		
2268507	K	278I WESTBOUND (B.Q.E.)	YORK STREET		A		6	S	7/2/2013	4.071	F	10,388	\$45,966,900	302		
2268517	K	278I WESTBOUND (B.Q.E.)	FURMAN STREET		A		7	S	7/1/2013	4.000	F	10,988	\$48,621,900	302		

**INVENTORY SORTED BY FEATURE CARRIED**

BIN	BORO	FEATURE CARRIED	FEATURE CROSSED	RAIL RO	BRIDGE TYPE	OTHER OWNER	SPANS	RT NG SR	Inspection Date	Condition Rating	VR BL RT	DECK AREA	REPLACEMENT COST	CD	CD2	CD3
2230420	K	278I WESTBOUND (B.Q.E.)	WASHINGTON STREET		A		1	S	7/16/2014	5.047	G	2,500	\$11,062,500	302		
2230440	K	278I WESTBOUND (B.Q.E.)	ADAMS STREET		A		1	S	1/15/2014	5.200	G	2,700	\$11,947,500	302		
2230857	K	278I WESTBOUND (B.Q.E.)	JORALEMON STREET		A		1	S	3/11/2014	5.000	G	2,100	\$9,292,500	302		
2246490	M	A.C. POWELL BOULEVARD NORTHBOUND	A.C. POWELL BOULEVARD		O		1	S	1/31/2014	4.347	F	3,000	\$13,275,000	110		
2249320	R	ALBEE AVENUE	SIRT SOUTH SHORE	S	O		3	S	9/25/2013	4.689	F	6,500	\$28,762,500	503		
2268920	R	AMBOY ROAD	LEMON CREEK		WO		1	S	3/10/2014	6.333	VG	1,310	\$5,796,750	503		
2247530	O	ANDREWS AVENUE	LIRR MONTAUK DIV	L	O		1	S	9/3/2013	7.000	VG	1,765	\$7,810,125	405		
2249330	R	ANNADALE ROAD	SIRT SOUTH SHORE	S	O		1	S	8/23/2013	6.233	VG	3,540	\$15,664,500	503		
2249240	R	ARTHUR KILL ROAD	SIRT SOUTH SHORE	S	O		1	S	10/14/2014	4.796	F	3,650	\$16,151,250	503		
2249820	R	ARTHUR KILL ROAD	ARTHUR KILL STREAM		WO		1	S	5/20/2013	4.184	F	1,500	\$6,637,500	503		
2230810	O	ASTORIA BOULEVARD EASTBOUND	278I (BOE WEST LEG)		A		4	S	3/14/2014	4.279	F	8,200	\$36,285,000	401		
2243569	K	ATLANTIC AVENUE	LIRR ATLANTIC AVENUE	L	O		75	S	6/18/2014	3.620	F	135,100	\$597,817,500	316	305	
2244170	K	ATLANTIC AVENUE SERVICE ROAD EASTBOUND	EAST NEW YORK AVENUE		O		2	S	8/5/2013	5.474	G	3,192	\$14,124,600	305		
2244180	K	ATLANTIC AVENUE SERVICE ROAD WESTBOUND	EAST NEW YORK AVENUE		O		2	S	8/5/2013	5.105	G	5,600	\$24,780,000	305		
2243530	K	AVENUE H	LIRR BAY RIDGE	N	O		2	S	9/9/2013	5.956	G	35,100	\$155,317,500	318		
2243750	K	AVENUE O	BMT SEA BEACH	T	O		1	S	8/12/2013	5.706	G	4,658	\$20,611,650	311		
2243760	K	AVENUE P	BMT SEA BEACH	T	O		1	S	8/13/2013	6.140	VG	5,544	\$24,532,200	311		
2243790	K	AVENUE S	BMT SEA BEACH	T	O		1	S	7/2/2013	5.967	G	5,360	\$23,718,000	315		
2243800	K	AVENUE T	BMT SEA BEACH	T	O		1	S	7/3/2013	6.200	VG	5,360	\$23,718,000	311		
2243810	K	AVENUE U	BMT SEA BEACH	T	O		1	S	6/20/2014	5.294	G	5,880	\$26,019,000	315		
2249440	R	BANCROFT AVENUE	SIRT SOUTH SHORE	S	O		3	S	10/9/2013	5.393	G	5,900	\$26,107,500	502		
2241180	B	BARRETTO STREET	AMTRAK - CSX	AC	O		1	S	11/18/2014	5.813	G	5,313	\$23,510,025	202		
2232000	M	BATTERY PLACE	FDR DRIVE		AT		2	S	10/16/2013	5.182	G	142,000	\$628,350,000	101		
2231290	K	BAY 8TH STREET	BSHP		A		1	S	6/11/2013	5.921	G	4,950	\$21,903,750	311		
2243740	K	BAY PARKWAY	BMT SEA BEACH	T	O		4	S	5/22/2014	4.658	F	16,800	\$74,340,000	311		
2231760	O	BCIP	DUTCH BROADWAY-115TH AVENUE		A		1	S	2/28/2014	4.233	F	7,300	\$32,302,500	413		
2231900	O	BCIP	TOTTEN AVENUE		A		1	S	5/12/2014	4.609	F	4,900	\$21,682,500	407		
2266770	O	BCIP	LAURELTON PARKWAY		A		1	S	3/7/2014	4.972	F	9,508	\$42,072,900	413		
Q00002	O	BCIP	PATH OPPOSITE 88TH ROAD		A		1	C	6/11/2014	4.667	F	1,272	\$5,628,600	413		
2076109	B	BE NORTHBOUND SERVICE ROAD	HUTCHINSON RIVER PARKWAY		A		2	S	8/15/2013	5.105	G	7,800	\$34,515,000	210		
2076129	B	BE SOUTHBOUND SERVICE ROAD	HUTCHINSON RIVER PARKWAY		A		2	S	1/16/2014	5.079	G	7,100	\$31,417,500	210		
2249400	R	BEACH AVENUE	SIRT SOUTH SHORE	S	O		2	S	8/19/2013	5.364	G	3,700	\$16,372,500	502		
2248230	O	BEACH CHANNEL DRIVE WESTBOUND	BEACH CHANNEL DRIVE EASTBOUND		O		1	S	6/18/2013	4.400	F	3,600	\$15,930,000	484		
2243490	K	BEDFORD AVENUE	LIRR BAY RIDGE	N	O		6	S	9/15/2014	5.097	G	12,000	\$53,100,000	314		
2241840	B	BEDFORD PARK BOULEVARD	METRO NORTH RR HAR	M	O		1	S	4/28/2014	4.656	F	6,400	\$28,320,000	227	207	
2241930	B	BEDFORD PARK BOULEVARD	NYCTA IND YARDS	T	O		4	S	10/31/2014	5.347	G	46,300	\$204,877,500	207		
2249580	R	BELFIELD AVENUE PEDESTRIAN BRIDGE	SIRT SOUTH SHORE	S	O-PED		5	C	3/14/2014	3.980	F	400	\$1,770,000	503		

### INVENTORY SORTED BY FEATURE CARRIED

BIN	BORO	FEATURE CARRIED	FEATURE CROSSED	RAIL L R O	BRIDGE TYPE	OTHER OWNER	SPA NS	RT NG SR	Inspection Date	Condition Rating	VR BL RT	DECK AREA	REPLACEMENT COST	CD	CD2	CD3
2247140	O	BELL BOULEVARD	LIRR PORT WASH BR	L	O		1	S	9/5/2013	5.780	G	4,320	\$19,116,000	411		
2231790	O	BELMONT PARK NORTH RAMP	BCIP		A	P	1	S	1/12/2014	4.563	F	3,400	\$15,045,000	413		
2231770	O	BELMONT PARK SOUTH RAMP	BCIP		A	P	1	S	2/26/2014	4.781	F	3,200	\$14,160,000	413		
2249250	R	BETHEL AVENUE PEDESTRIAN BRIDGE	SIRT SOUTH SHORE	S	O-PED		12	C	3/6/2014	3.525	F	111	\$491,175	503		
2243100	K	BEVERLY ROAD	BMT SUBWAY, BRIGHTON	T	O		3	S	6/3/2014	4.263	F	4,200	\$18,585,000	314		
2243900	K	BLAKE AVENUE	LIRR BAY RIDGE	N	O		3	S	9/26/2014	4.927	F	4,912	\$21,735,600	316		
2248379	O	BOATHOUSE BRIDGE	AQUACADE LAKE		WO	P	5	S	8/1/2013	4.296	F	6,300	\$27,877,500	481		
2240410	O	BORDEN AVENUE	DUTCH KILLS		WMO		2	S	7/5/2013	4.792	F	8,400	\$37,170,000	402		
2270180	R	BOROUGH PLACE - RAMP A	STATEN ISLAND RAILWAY	S	O	F	1	S	5/9/2014	6.594	VG	1,870	\$8,274,750	501		
2229579	B	BOSTON ROAD	HUTCHINSON RIVER		WO		14	S	5/9/2014	4.042	F	95,700	\$423,472,500	212		
2242110	B	BOSTON ROAD	BRONX RIVER		WO		1	S	2/26/2014	4.227	F	6,200	\$27,435,000	227		
2242100	B	BOTANICAL GARDEN ROAD	TWIN LAKES		WO	P	1	S	2/26/2014	4.833	F	2,200	\$9,735,000	227		
2247050	O	BOWNE AVENUE	LIRR PORT WASH BR	L	O		1	S	9/24/2014	5.451	G	4,974	\$22,009,950	407		
2231829	O	BRADDOCK AVENUE	BCIP		A		2	S	3/19/2014	4.886	F	10,600	\$46,905,000	413		
2249730	R	BRIDGE OVER DAM	NORTH END CLOVE LAKE		WO-PED	P	1	C	5/6/2014	3.351	F	1,000	\$4,425,000	501		
2230590	O	BROADWAY	2781 (B.O.E.)		A		2	S	12/6/2012	5.789	G	16,000	\$70,800,000	402		
2240137	BM	BROADWAY BRIDGE	HARLEM RIVER	TM	WMO		3	S	12/17/2014	3.806	F	46,848	\$207,302,400	112	207	208
2242072	B	BRONX BOULEVARD NORTHBOUND	BRONX RIVER		WO		1	S	3/27/2014	4.867	F	1,800	\$7,965,000	212		
2242082	B	BRONX BOULEVARD NORTHBOUND	BRONX RIVER		WO		1	S	3/26/2014	4.467	F	2,800	\$12,390,000	212		
2242071	B	BRONX BOULEVARD SOUTHBOUND	BRONX RIVER		WO		1	S	3/27/2014	4.367	F	1,800	\$7,965,000	212		
2242081	B	BRONX BOULEVARD SOUTHBOUND	BRONX RIVER		WO		1	S	3/26/2014	4.300	F	2,800	\$12,390,000	212		
2075849	B	BRONX PELHAM PARKWAY	HUTCHINSON RIVER PARKWAY		A		2	S	5/8/2014	3.974	F	17,600	\$77,880,000	210	211	
2229560	B	BRONX PELHAM PARKWAY	AMTRAK - CSX	AC	A		3	S	11/12/2014	4.486	F	24,591	\$108,815,175	211		
2065629	B	BRONX RIVER PARKWAY	BOSTON ROAD - BX ZOO		A		1	S	8/14/2013	5.138	G	6,300	\$27,877,500	227		
2270250	B	BROOKE AVENUE	CSX TRANS - PT MORRIS		O		1	S	7/11/2014	3.727	F	21,035	\$93,079,875	201		
2243520	K	BROOKLYN AVENUE	LIRR BAY RIDGE	N	O		3	S	8/8/2013	5.873	G	4,500	\$19,912,500	318		
2240019	KM	BROOKLYN BRIDGE	EAST RIVER		WEO		75	S	12/5/2014	3.139	F	503,788	\$2,229,261,900	103	302	101
2267860	K	BROOKLYN BRIDGE APPROACH	STORAGE (SANDS STREET)		O		1	S	5/23/2014	4.344	F	6,490	\$28,718,250	302		
2268350	K	BROOKLYN PROMENADE	2781 EASTBOUND (BOE)		A-PED	P	35	C	8/10/2014	3.552	F	46,184	\$204,364,200	302		
2241099	B	BRUCKNER BOULEVARD	CSX TRANS - PT MORRIS	C	O		1	S	7/16/2014	6.067	VG	6,700	\$29,647,500	201		
2076929	B	BRUCKNER EXPRESSWAY	CSX - HUNTS POINT	C	A		1	S	8/28/2013	4.567	F	3,800	\$16,815,000	202		
2075352	B	BRUCKNER EXPRESSWAY NORTHBOUND	AMTRAK - CSX	AC	A		1	S	10/30/2014	6.190	VG	10,900	\$48,232,500	202		
1066510	B	BRUCKNER EXPRESSWAY SERVICE ROAD	WESTCHESTER CREEK		WMA		17	S	9/17/2014	3.226	F	39,400	\$174,345,000	209		
2066671	B	BRUCKNER EXPRESSWAY SOUTHBOUND	BRONX RIVER		WA		3	S	10/15/2013	5.222	G	12,400	\$54,870,000	202	209	
2075351	B	BRUCKNER EXPRESSWAY SOUTHBOUND	AMTRAK - CSX	AC	A		1	S	10/29/2014	5.698	G	11,600	\$51,330,000	202		
2066672	B	BRUCKNER EXPRESSWAY NORTHBOUND	BRONX RIVER		WA		8	S	10/15/2013	4.418	F	22,300	\$98,677,500	202	209	
2241210	B	BRYANT AVENUE	AMTRAK - CSX	AC	O		1	S	11/19/2014	3.186	F	5,300	\$23,452,500	202		

## INVENTORY SORTED BY FEATURE CARRIED

BIN	BORO	FEATURE CARRIED	FEATURE CROSSED	RAIL RO	BRIDGE TYPE	OTHER OWNER	SPANS	RT NG SR	Inspection Date	Condition Rating	VR BL RT	DECK AREA	REPLACEMENT COST	CD	CD2	CD3
2231249	K	BSHP	BAY RIDGE AVENUE		A		1	S	3/26/2014	3.625	F	4,900	\$21,682,500	310		
2231319	K	BSHP	BAY PARKWAY		A		1	S	6/19/2014	4.533	F	7,200	\$31,860,000	311		
2231329	K	BSHP	26TH AVENUE		A		1	S	4/1/2014	4.600	F	6,700	\$29,647,500	313		
2231360	K	BSHP	OCEAN PARKWAY		A		3	S	7/16/2014	6.448	VG	29,637	\$131,143,725	313		
2231409	K	BSHP	SHEEPSHEAD BAY ROAD		A		1	S	4/1/2014	4.738	F	6,500	\$28,762,500	315		
2231419	K	BSHP	OCEAN AVENUE		A		3	S	3/25/2014	4.306	F	14,000	\$61,950,000	315		
2231429	K	BSHP	BEDFORD AVENUE		A		3	S	4/23/2014	4.278	F	12,000	\$53,100,000	315		
2231439	K	BSHP	NOSTRAND AVENUE		A		3	S	3/25/2014	4.264	F	13,000	\$57,525,000	315		
2231450	K	BSHP	GERRITSEN INLET		WA		11	S	8/12/2014	3.418	F	52,000	\$230,100,000	356		
2231479	K	BSHP	MILL BASIN		WMA		14	S	11/4/2014	3.269	F	73,500	\$325,237,500	318		
2231499	K	BSHP	ROCKAWAY PARKWAY		A		1	S	11/5/2014	7.000	VG	10,370	\$45,887,250	356		
2231509	K	BSHP	FRESH CREEK		WA		3	S	11/25/2013	6.831	VG	40,095	\$177,420,375	356		
2231482	K	BSHP EASTBOUND	PAERDEGAT BASIN		WA		5	S	11/4/2014	7.000	VG	82,074	\$363,177,450	318		
2231481	K	BSHP WESTBOUND	PAERDEGAT BASIN		WA		3	S	11/5/2013	6.939	VG	50,052	\$221,480,100	318		
2230790	O	BULOVA AVENUE	278I (BOE WEST LEG)		A		2	S	4/4/2014	5.278	G	3,300	\$14,602,500	401		
2269770	R	BUS STATION ENTRANCE RAMP	SIRT	S	O	F	19	S	10/11/2013	5.611	G	39,333	\$174,048,525	501		
2269790	R	BUS STATION EXIT RAMP	SIRT	S	O	F	7	S	11/4/2014	5.167	G	28,721	\$127,090,425	501		
2269740	R	BUS STATION NORTH	SIRT	S	O	F	12	S	11/2/2014	5.600	G	64,605	\$285,877,125	501		
2269750	R	BUS STATION SOUTH	SIRT	S	O	F	12	S	11/2/2014	5.280	G	154,688	\$684,494,400	501		
2247460	O	CALDWELL AVENUE	CSX TRANSPORT	C	O		1	S	11/10/2014	5.889	G	2,243	\$9,925,275	405		
2243290	K	CARLTON AVENUE	LIRR ATLANTIC AVENUE	L	O		4	S	7/29/2013	6.806	VG	15,400	\$68,145,000	302		
2240260	K	CARROLL STREET	GOWANUS CANAL		WMO		2	S	10/13/2014	5.208	G	3,000	\$13,275,000	306		
2243220	K	CARROLL STREET PEDESTRIAN BRIDGE	FRANKLIN SHUTTLE	T	O-PED		3	C	4/29/2014	5.789	G	600	\$2,655,000	309		
2243050	K	CATON AVENUE	BMT SUBWAY, BRIGHTON	T	O		4	S	8/23/2013	4.842	F	20,800	\$92,040,000	314		
2249390	R	CEDARVIEW AVENUE PEDESTRIAN BRIDGE	SIRT SOUTH SHORE	S	O-PED		5	C	3/11/2014	3.615	F	625	\$2,765,625	503		
2246100	M	CENTER DRIVE	TRANSVERSE ROAD #1		O	P	1	S	2/7/2014	4.467	F	6,000	\$26,550,000	164		
2246050	M	CENTER DRIVE (DRIPROCK ARCH)	PEDESTRIAN OPPOSITE 63RD STREET		O	P	1	S	1/14/2014	4.867	F	1,725	\$7,633,125	164		
2244050	K	CENTER DRIVE (NETHERMEAD ARCHES)	PEDESTRIAN PATH & STREAM		WO	P	3	S	5/22/2013	5.000	G	7,020	\$31,063,500	355		
2246070	M	CENTER DRIVE (PLAYMATES ARCH)	PEDESTRIAN PATH OPPOSITE 65TH STREET		O	P	1	C	6/11/2014	4.500	F	1,129	\$4,995,825	164		
2268480	M	CHAMBERS STREET PEDESTRIAN BRIDGE	ROUTE 9A - WEST STREET		O-PED		10	C	5/30/2014	5.391	G	7,481	\$33,103,425	101		
2249280	R	CHAMP COURT PEDESTRIAN BRIDGE	SIRT SOUTH SHORE	S	O-PED		7	C	3/7/2014	4.393	F	595	\$2,632,875	503		
2249880	R	CHELSEA ROAD	SAWMILL CREEK		WO		1	S	5/21/2013	6.633	VG	2,205	\$9,757,125	502		
2240210	B	CITY ISLAND ROAD	EASTCHESTER BAY		WO		7	S	10/16/2014	3.389	F	19,915	\$88,123,875	228		
2241710	B	CLAREMONT PARKWAY	METRO NORTH RR HAR	M	O		1	S	4/17/2014	6.458	VG	5,950	\$26,328,750	203		
2231940	O	CLINTONVILLE STREET	BCIP		A		2	S	2/21/2014	4.705	F	7,400	\$32,745,000	407		
2249490	R	CLOVE ROAD	SIRT SOUTH SHORE	S	O		3	S	10/16/2014	5.778	G	5,104	\$22,585,200	502		
2231570	O	COHANCY STREET	BSOP		A		2	S	4/17/2014	4.395	F	6,400	\$28,320,000	410		

**INVENTORY SORTED BY FEATURE CARRIED**

BIN	BORO	FEATURE CARRIED	FEATURE CROSSED	RAIL RO	BRIDGE TYPE	OTHER OWNER	SPANS	RT NG SR	Inspection Date	Condition Rating	VR BL RT	DECK AREA	REPLACEMENT COST	CD	CD2	CD3
2230870	K	COLUMBIA HEIGHTS	278I (B.O.E.)		A		1	S	8/7/2014	4.450	F	16,500	\$73,012,500	302		
2241590	B	CONCOURSE VILLAGE AVENUE	METRO NORTH RR HAR	M	O		1	S	4/19/2014	3.969	F	12,077	\$53,440,725	204		
2244460	K	CONDUIT BOULEVARD NORTHBOUND	ATLANTIC AVENUE EASTBOUND		O		1	S	10/10/2014	4.833	F	3,800	\$16,815,000	305		
2231380	K	CONEY ISLAND AVENUE	BSHP		A		4	S	10/15/2013	5.708	G	19,866	\$87,907,050	313		
2243440	K	CONEY ISLAND AVENUE	LIRR BAY RIDGE	N	O		1	S	9/18/2014	5.043	G	3,231	\$14,297,175	312		
2230390	K	CONGRESS STREET	278I (B.O.E.)		A		2	S	3/27/2014	6.029	VG	5,000	\$22,125,000	306		
2246510	M	CORBIN PLACE OVERPASS	CORBIN PLACE		O	P	1	S	1/8/2014	5.000	G	2,223	\$9,836,775	112		
2232029	M	CORLEARS PARK ROAD	FDR DRIVE		A	P	4	S	3/20/2014	3.813	F	4,100	\$18,142,500	103		
2247130	O	CORPORAL KENNEDY STREET	LIRR PORT WASH BR	L	O		1	S	9/5/2013	6.157	VG	3,379	\$14,952,075	411		
2243110	K	CORTEYOU ROAD	BMT SUBWAY, BRIGHTON	T	O		3	S	8/20/2013	6.139	VG	4,810	\$21,284,250	314		
2231880	O	CROCHERON PARK PEDESTRIAN	BCIP		A-PED	P	9	C	5/13/2014	3.954	F	2,300	\$10,177,500	411		
2243040	K	CROOKE AVENUE	BMT SUBWAY, BRIGHTON	T	O		4	S	6/11/2014	4.421	F	6,000	\$26,550,000	314		
2231340	K	CROPSEY AVENUE	BSHP		A		2	S	7/10/2014	4.639	F	13,100	\$57,967,500	313		
2240302	K	CROPSEY AVENUE NORTHBOUND	CONEY ISLAND CREEK		WO		3	S	10/27/2014	4.718	F	9,400	\$41,595,000	313		
2240301	K	CROPSEY AVENUE SOUTHBOUND	CONEY ISLAND CREEK		WO		3	S	7/2/2013	5.000	G	9,400	\$41,595,000	313		
2231559	O	CROSS BAY BOULEVARD	BSHP		A		4	S	5/30/2014	5.083	G	23,205	\$102,682,125	410		
2248039	O	CROSS BAY BOULEVARD	NASSAU EXPRESSWAY - ROUTE 27		O		2	S	5/31/2013	6.208	VG	16,544	\$73,207,200	410		
2242030	B	CROTONA AVENUE	BRONX PELHAM PARKWAY		O		2	S	1/29/2014	5.447	G	7,600	\$33,630,000	206		
2243230	K	CROWN STREET	FRANKLIN SHUTTLE	T	O		3	S	8/8/2013	5.014	G	4,060	\$17,965,500	309		
2230040	O	CYPRESS HILLS STREET	JACKIE ROBINSON PARKWAY		A		1	S	3/28/2014	4.722	F	5,000	\$22,125,000	405		
2249160	R	DE HART AVENUE	B&O RR (ABANDONED)	O	O		4	S	5/15/2013	6.389	VG	6,700	\$29,647,500	501		
2232030	M	DELANCEY STREET PEDESTRIAN BRIDGE	FDR DRIVE		A-PED	P	12	C	3/9/2014	4.443	F	3,390	\$15,000,750	103		
2076640	B	DEPOT PLACE	METRO NORTH RR HUD	CM	O		11	S	5/16/2014	4.653	F	26,566	\$117,554,550	204		
2243130	K	DITMAS AVENUE	BMT SUBWAY, BRIGHTON	T	O		1	S	8/22/2013	5.723	G	5,150	\$22,788,750	314		
2243120	K	DORCHESTER ROAD	BMT SUBWAY, BRIGHTON	T	O		1	S	6/16/2014	5.863	G	4,825	\$21,350,625	314		
2247170	O	DOUGLASTON PARKWAY	LIRR PORT WASH BR	L	O		3	S	10/1/2014	4.542	F	6,300	\$27,877,500	411		
2266129	O	DOUGLASTON PARKWAY	BCIP SOUTHBOUND		A		1	S	3/10/2014	4.592	F	4,400	\$19,470,000	411		
2266139	O	DOUGLASTON PARKWAY	BCIP NORTHBOUND		A		1	S	3/12/2014	4.653	F	6,400	\$28,320,000	411		
2242260	B	EAGLE AVENUE	EAST 161ST STREET		O		1	S	2/14/2014	5.117	G	2,800	\$12,390,000	201	203	
2243420	K	EAST 3RD STREET	LIRR BAY RIDGE	N	O		1	S	8/8/2013	6.517	VG	1,840	\$8,142,000	312		
2232050	M	EAST 6TH STREET PEDESTRIAN BRIDGE	FDR DRIVE		A-PED	P	19	C	3/13/2014	4.167	F	2,200	\$9,735,000	103		
2233020	M	EAST 10TH STREET PEDESTRIAN BRIDGE	FDR DRIVE		A-PED	P	21	C	4/14/2014	4.673	F	2,754	\$12,186,450	103		
2231390	K	EAST 12TH STREET	BSHP		A		4	S	7/7/2014	4.542	F	17,200	\$76,110,000	315		
2243450	K	EAST 14TH STREET	LIRR BAY RIDGE	N	O		1	S	9/17/2014	4.809	F	1,775	\$7,854,375	314		
2233080	K	EAST 14TH STREET PEDESTRIAN BRIDGE	BSHP		A-PED		14	C	8/5/2014	4.164	F	4,700	\$20,797,500	315		
2243460	K	EAST 15TH STREET PEDESTRIAN BRIDGE	LIRR BAY RIDGE	N	O-PED		3	C	8/12/2014	5.592	G	900	\$3,982,500	314		
2243080	K	EAST 18TH STREET - CHURCH AVE	BMT SUBWAY, BRIGHTON	T	O		4	S	8/20/2013	4.545	F	18,200	\$80,535,000	314		



**INVENTORY SORTED BY FEATURE CARRIED**

BIN	BORO	FEATURE CARRIED	FEATURE CROSSED	RAIL RO	BRIDGE TYPE	OTHER OWNER	SPANS	RT NG SR	Inspection Date	Condition Rating	VR BL RT	DECK AREA	REPLACEMENT COST	CD	CD2	CD3
2232070	M	EAST 25TH STREET PEDESTRIAN BRIDGE	FDR DRIVE		A-PED		3	C	3/23/2014	4.600	F	1,700	\$7,522,500	106		
2246540	M	EAST 34TH STREET	PARK AVENUE TUNNEL		OT		1	S	8/20/2014	4.117	F	36,200	\$160,185,000	105	106	
2246570	M	EAST 42ND STREET - EAST 47TH STREET	FIRST AVE TUNNEL		OT		2	S	5/20/2014	4.922	F	95,000	\$420,375,000	106		
2232100	M	EAST 51ST STREET PEDESTRIAN BRIDGE	FDR DRIVE		A-PED	P	6	C	4/22/2014	4.283	F	2,800	\$12,390,000	106		
2233040	M	EAST 60TH STREET	FDR DRIVE		A	P	17	S	7/2/2014	5.000	G	24,480	\$108,324,000	108		
2246030	M	EAST 62ND STREET PEDESTRIAN BRIDGE (GAPSTOW BRIDGE)	THE POND		O-PED	P	1	C	4/21/2014	3.897	F	1,400	\$6,195,000	164		
2232110	M	EAST 63RD STREET PEDESTRIAN BRIDGE	FDR DRIVE		A-PED	P	11	U	11/23/2011	4.912	F	2,100	\$9,292,500	108		
2232120	M	EAST 71ST STREET PEDESTRIAN BRIDGE	FDR DRIVE		A-PED	P	19	C	8/17/2014	4.761	F	3,700	\$16,372,500	108		
2246450	M	EAST 77TH STREET PEDESTRIAN (GLADE ARCH)	PEDESTRIAN PATH OPPOSITE EAST 77TH STREET		O-PED	P	1	C	4/1/2014	4.138	F	5,000	\$22,125,000	164		
2232140	M	EAST 78TH STREET PEDESTRIAN BRIDGE	FDR DRIVE		A-PED	P	13	C	5/8/2014	6.708	VG	5,226	\$23,125,050	108		
2269820	M	EAST 81ST STREET PEDESTRIAN BRIDGE	FDR DRIVE NORTHBOUND		A-PED	P	3	C	6/8/2014	3.439	F	600	\$2,655,000	108		
2246390	M	EAST 86TH STREET PEDESTRIAN (SOUTHEAST RESERVOIR BRIDGE)	BRIDLE PATH		O-PED	P	3	C	10/17/2014	4.509	F	1,100	\$4,867,500	164		
2245319	M	EAST 97TH STREET	METRO NORTH MAIN LN	M	O		1	S	12/17/2014	4.647	F	3,200	\$14,160,000	111		
2232180	M	EAST 103RD STREET PEDESTRIAN BRIDGE	FDR DRIVE		A-PED		18	C	8/17/2014	4.390	F	6,807	\$30,120,975	111		
2232190	M	EAST 111TH STREET PEDESTRIAN BRIDGE	FDR DRIVE		A-PED	P	9	C	8/25/2014	4.319	F	4,254	\$18,823,950	111		
2232200	M	EAST 120TH STREET PEDESTRIAN BRIDGE	FDR DRIVE		A-PED	P	18	C	8/24/2014	4.114	F	3,978	\$17,602,650	111		
2246620	M	EAST 128TH STREET PEDESTRIAN BRIDGE	3RD AVE BRIDGE APPROACH		O-PED		18	C	12/15/2014	3.939	F	2,300	\$10,177,500	111		
2246990	M	EAST 129TH STREET PEDESTRIAN BRIDGE	3RD AVENUE BRIDGE RAMP		O-PED	P	5	C	12/2/2013	4.095	F	1,046	\$4,628,550	111		
2241550	B	EAST 144TH STREET	METRO NORTH RR HAR	M	O		2	S	8/30/2013	6.181	VG	8,290	\$36,683,250	201		
2241129	B	EAST 149TH STREET	AMTRAK - CSX	AC	O		2	S	11/17/2014	4.592	F	18,258	\$80,791,650	201	202	
2241560	B	EAST 149TH STREET	METRO NORTH RR HAR	M	O		8	S	5/5/2014	4.625	F	27,900	\$123,457,500	201	204	
2241050	B	EAST 149TH STREET / JACKSON AVENUE	CSX PT MORRIS - (ABANDONED)	C	O		1	S	5/12/2014	4.817	F	65,000	\$287,625,000	201		
2241010	B	EAST 156TH STREET	CSX PT MORRIS - (ABANDONED)	C	O		1	S	5/9/2014	4.612	F	2,400	\$10,620,000	201		
2270030	B	EAST 156TH STREET	ACCESS TO HOUSING		O	ED	16	S	11/13/2014	3.493	F	49,696	\$219,904,800	204		
2241600	B	EAST 158TH STREET	METRO NORTH RR HAR	M	O		1	S	8/31/2013	5.200	G	3,400	\$15,045,000	204		
2241020	B	EAST 161ST STREET	CSX PT MORRIS - (ABANDONED)	C	O		1	S	3/20/2014	5.800	G	12,800	\$56,640,000	203		
2241610	B	EAST 161ST STREET	METRO NORTH RR HAR	M	O		1	S	9/24/2013	5.050	G	6,600	\$29,205,000	204	203	
2241620	B	EAST 162ND STREET	METRO NORTH RR HAR	M	O		1	S	4/26/2014	4.781	F	4,700	\$20,797,500	203		
2241030	B	EAST 163RD STREET	CSX PT MORRIS - (ABANDONED)	C	O		1	S	2/27/2014	4.611	F	3,200	\$14,160,000	203		
2241630	B	EAST 165TH STREET	METRO NORTH RR HAR	M	O		1	S	4/26/2014	4.300	F	16,400	\$72,570,000	203		
2241650	B	EAST 167TH STREET	METRO NORTH RR HAR	M	O		1	S	4/21/2014	5.510	G	3,363	\$14,881,275	203		
2241660	B	EAST 168TH STREET	METRO NORTH RR HAR	M	O		1	S	4/22/2014	4.641	F	4,800	\$21,240,000	203		
2241670	B	EAST 169TH STREET	METRO NORTH RR HAR	M	O		1	S	4/22/2014	4.188	F	3,300	\$14,602,500	203		
2241680	B	EAST 170TH STREET	METRO NORTH RR HAR	M	O		1	S	4/22/2014	6.333	VG	3,150	\$13,938,750	203		
2241720	B	EAST 173RD STREET	METRO NORTH RR HAR	M	O		1	S	4/17/2014	4.875	F	3,000	\$13,275,000	203		
2066720	B	EAST 174TH STREET	SHERIDAN EXPRESSWAY/AMTRAK	A	A		13	S	7/29/2014	3.986	F	35,573	\$157,410,525	209	203	
2241740	B	EAST 175TH STREET	METRO NORTH RR HAR	M	O		1	S	4/14/2014	3.875	F	3,600	\$15,930,000	206		

**INVENTORY SORTED BY FEATURE CARRIED**

BIN	BORO	FEATURE CARRIED	FEATURE CROSSED	RAIL L RO	BRIDGE TYPE	OTHER OWNER	SPA NS	RT NG SR	Inspection Date	Condition Rating	VR BL RT	DECK AREA	REPLACEMENT COST	CD	CD2	CD3
2241269	B	EAST 177TH STREET	AMTRAK - CSX	AC	O		3	S	7/29/2014	5.278	G	16,606	\$73,481,550	206		
2241770	B	EAST 178TH STREET PEDESTRIAN BRIDGE	METRO NORTH RR HAR	M	O-PED		1	C	10/23/2014	4.921	F	731	\$3,234,675	206		
2241780	B	EAST 179TH STREET PEDESTRIAN BRIDGE	METRO NORTH RR HAR	M	O-PED		6	C	10/22/2014	5.311	G	1,011	\$4,473,675	206		
2241790	B	EAST 180TH STREET	METRO NORTH RR HAR	M	O		1	S	4/24/2014	3.844	F	5,000	\$22,125,000	206		
2242400	B	EAST 180TH STREET	BRONX RIVER		WO		1	S	9/26/2014	4.810	F	4,500	\$19,912,500	206	227	
2241800	B	EAST 183TH STREET	METRO NORTH RR HAR	M	O		1	S	4/24/2014	3.953	F	4,080	\$18,054,000	206		
2241820	B	EAST 187TH STREET	METRO NORTH RR HAR	M	O		1	S	4/23/2014	4.344	F	3,800	\$16,815,000	206		
2241810	B	EAST 188TH STREET	METRO NORTH RR HAR	M	O		1	S	4/16/2014	4.094	F	5,300	\$23,452,500	206		
2241839	B	EAST 189TH STREET	METRO NORTH RR HAR	M	O		1	S	8/28/2013	6.133	VG	43,157	\$190,969,725	206	207	
2241870	B	EAST 233RD STREET	METRO NORTH RR HAR	M	O		1	S	4/28/2014	4.902	F	7,664	\$33,913,200	212	207	
2242459	B	EAST 233RD STREET	BRONX RIVER		WO		1	S	2/26/2014	4.233	F	7,000	\$30,975,000	212		
2242460	B	EAST 233RD STREET	ENTRANCE ROAD BRONX RIVER PARKWAY		O		1	S	1/7/2014	4.900	F	5,300	\$23,452,500	212		
2241890	B	EAST 241ST STREET	BRP, METRO NORTH HAR	M	WO		28	S	11/30/2013	4.417	F	49,500	\$219,037,500	212		
2244030	K	EAST DRIVE	BRIDLE PATH NEAR ZOO		O	P	1	S	5/17/2013	4.878	F	2,000	\$8,850,000	355		
2246110	M	EAST DRIVE	TRANSVERSE ROAD #1		O	P	1	S	3/19/2014	4.667	F	6,000	\$26,550,000	164		
2246230	M	EAST DRIVE	TRANSVERSE ROAD #2		O	P	1	S	3/11/2014	4.600	F	5,080	\$22,479,000	164		
2246250	M	EAST DRIVE	TRANSVERSE ROAD #3		O	P	1	S	1/17/2014	4.300	F	4,500	\$19,912,500	164		
2246270	M	EAST DRIVE	TRANSVERSE ROAD #4		O	P	1	S	3/20/2014	4.100	F	7,000	\$30,975,000	164		
2246170	M	EAST DRIVE (TREFOIL ARCH)	PEDESTRIAN PATH OPPOSITE EAST 73RD STREET		O	P	1	S	1/24/2014	5.130	G	1,900	\$8,407,500	164		
2244040	K	EAST DRIVE (EAST WOOD ARCH)	PEDESTRIAN PATH NEAR CENTER DRIVE		O	P	1	C	6/16/2014	4.667	F	1,066	\$4,717,050	355		
2244010	K	EAST DRIVE (ENDALE ARCH)	PEDESTRIAN PATH NEAR GRAND ARMY PLAZA		O	P	1	C	5/28/2014	4.367	F	1,533	\$6,783,525	355		
2246069	M	EAST DRIVE (GREEN GAP ARCH)	PEDESTRIAN PATH BETWEEN 63RD & 64TH STREETS		O	P	1	S	1/16/2014	4.433	F	2,075	\$9,181,875	164		
2246350	M	EAST DRIVE (GREYWACKE ARCH)	PEDESTRIAN PATH OPPOSITE EAST 80TH STREET		O	P	1	C	5/23/2014	3.733	F	1,266	\$5,602,050	164		
2246470	M	EAST DRIVE (HUDDLESTONE ARCH)	THE LOCH		WO	P	1	S	1/28/2014	4.500	F	1,100	\$4,867,500	164		
2246040	M	EAST DRIVE (INSCOPE ARCH)	PEDESTRIAN PATH OPPOSITE EAST 62ND STREET		O	P	1	C	4/30/2014	4.400	F	1,515	\$6,703,875	164		
2246130	M	EAST DRIVE (WILLOWDELL ARCH)	PEDESTRIAN PATH OPPOSITE EAST 67TH STREET		O	P	1	C	4/29/2014	3.500	F	666	\$2,947,050	164		
2249720	R	EAST FOOTBRIDGE	CLOVE LAKE		WO-PED	P	2	C	4/28/2014	4.371	F	900	\$3,982,500	501		
2242010	B	EAST FORDHAM ROAD	BRONX RIVER		WO		1	S	3/26/2014	5.467	G	9,200	\$40,710,000	227		
2242350	B	EAST FORDHAM ROAD	GRAND CONCOURSE		O		1	S	3/7/2014	4.833	F	10,300	\$45,577,500	205	207	
2075820	B	EAST TREMONT AVENUE	HUTCHINSON RIVER PARKWAY		A		2	S	11/21/2013	4.444	F	10,200	\$45,135,000	210		
2241270	B	EAST TREMONT AVENUE	AMTRAK - CSX	AC	O		2	S	10/31/2014	5.153	G	22,300	\$98,677,500	209	211	
2241760	B	EAST TREMONT AVENUE	METRO NORTH RR HAR	M	O		1	S	8/29/2013	6.450	VG	8,424	\$37,276,200	206		
2242149	B	EAST TREMONT AVENUE	BRONX RIVER		WO		2	S	5/7/2014	4.361	F	12,900	\$57,082,500	206		
2241900	B	EASTCHESTER ROAD	NYCTA-DYRE AVENUE LINE	T	O		3	S	10/28/2014	4.472	F	13,500	\$59,737,500	212		
2243279	K	EASTERN PARKWAY	FRANKLIN SHUTTLE	T	O		1	S	6/27/2014	4.833	F	7,700	\$34,072,500	309	308	
2247470	O	ELIOT AVENUE	CSX TRANSPORT	C	O		1	S	8/15/2013	4.972	F	2,960	\$13,098,000	405		
2247550	O	ELIOT AVENUE	LIRR MONTAUK DIV	L	O		2	S	8/27/2013	5.712	G	9,550	\$42,258,750	405		

**INVENTORY SORTED BY FEATURE CARRIED**

BIN	BORO	FEATURE CARRIED	FEATURE CROSSED	RAIL L RO	BRIDGE TYPE	OTHER OWNER	SPA NS	RT NG SR	Inspection Date	Condition Rating	VR BL RT	DECK AREA	REPLACEMENT COST	CD	CD2	CD3
2248160	O	ELIOT AVENUE	QUEENS BOULEVARD		O		2	S	7/17/2014	4.804	F	13,785	\$60,998,625	406		
2269600	K	ERSKINE STREET	BSHP		A		1	S	8/20/2014	5.938	G	8,258	\$36,541,650	305		
2241200	B	FAILE STREET	AMTRAK - CSX	AC	O		1	S	11/19/2014	5.578	G	6,208	\$27,470,400	202		
2231620	O	FARMERS BOULEVARD	BSOP		A		2	S	4/25/2014	4.477	F	6,400	\$28,320,000	413		
223201C	M	FDR DR SOUTHBOUND OFF RAMP	SOUTH STREET		AR		8	S	2/6/2014	5.209	G	36,700	\$162,397,500	103		
223201A	M	FDR DRIVE NORTHBOUND OFF RMP	FDR DRIVE & SOUTH STREET		AR		17	S	7/23/2014	4.493	F	23,373	\$103,425,525	101		
2233038	M	FDR DRIVE SOUTHBOUND	FDR DRIVE NORTHBOUND / EAST 62ND STREET		AT		34	S	11/25/2014	6.563	VG	58,700	\$259,747,500	106	108	
2268650	M	FDR NORTHBOUND EAST 42ND STREET TO EAST 49TH STREET	EAST RIVER		A		119	S	10/17/2013	3.660	F	30,767	\$136,143,975	106		
223204A	M	FDR NORTHBOUND RAMP TO HOUSTON STREET	RELIEF		AR		4	S	1/17/2014	4.706	F	6,150	\$27,213,750	103		
2229520	B	FIELDSTON ROAD	HHP		A		1	S	7/29/2013	4.900	F	6,600	\$29,205,000	208		
2249480	R	FINGERBOARD ROAD	SIRT SOUTH SHORE	S	O		2	S	9/26/2013	6.431	VG	5,100	\$22,567,500	502		
2231460	K	FLATBUSH AVENUE	BSHP		A		2	S	10/18/2013	6.206	VG	14,058	\$62,206,650	356		
2243260	K	FLATBUSH AVENUE	FRANKLIN SHUTTLE	T	O		2	S	6/23/2014	4.961	F	11,300	\$50,002,500	309		
2243510	K	FLATBUSH AVENUE	LIRR BAY RIDGE	N	O		2	S	9/30/2014	4.651	F	5,900	\$26,107,500	318		
2244440	K	FLEET WALK PEDESTRIAN BRIDGE	NAVY STREET		O-PED		1	C	8/21/2014	3.958	F	620	\$2,743,500	302		
2248240	O	FLUSHING AVENUE SERVICE ROAD	FLUSHING AVENUE		O		1	S	6/21/2013	5.250	G	2,940	\$13,009,500	405		
2248090	O	FLUSHING MEADOW PARK PEDESTRIAN	COLLEGE POINT BOULEVARD		O-PED	P	3	C	3/24/2014	4.639	F	8,400	\$37,170,000	407		
2248130	O	FLUSHING MEADOW PARK PEDESTRIAN	WILLOW LAKE & 76TH ROAD		WO-PED	P	4	C	4/20/2002	1.000	C	1,891	\$8,367,675	481		
2248140	O	FLUSHING MEADW PARK ROAD	STREAM NORTH OF LIE		WO	P	5	S	7/31/2013	4.481	F	4,100	\$18,142,500	481		
2249780	R	FOOTBRIDGE	BROOKS LAKE DAM		WO-PED	P	1	C	5/19/2014	3.433	F	800	\$3,540,000	501		
2242120	B	FOOTBRIDGE NORTH OF ROUTE 1	BRONX RIVER		WO-PED	P	1	C	8/7/2013	3.583	F	1,900	\$8,407,500	227		
2249790	R	FOOTBRIDGE SOUTH OF FOREST AVENUE	STREAM IN PARK		WO-PED	P	3	C	10/21/2014	4.651	F	700	\$3,097,500	501		
2249800	R	FOREST AVENUE	CLOVE LAKES PARK STREAM		WO	P	1	S	11/6/2013	4.567	F	1,600	\$7,080,000	501		
2247590	O	FOREST PARK DRIVE	LIRR MONTAUK DIV	L	O	P	5	S	9/22/2014	5.158	G	6,000	\$26,550,000	409		
2247660	O	FOREST PARK DRIVE	ABANDONED LIRR		O	P	6	S	2/21/2014	4.524	F	10,000	\$44,250,000	409		
2248340	O	FOREST PARK DRIVE	MYRTLE AVENUE		O	P	3	S	5/24/2013	4.984	F	5,100	\$22,567,500	409		
2243620	K	FORT HAMILTON PARKWAY	LIRR & SEA BEACH	NT	O		3	S	6/19/2014	4.729	F	14,800	\$65,490,000	310		
2246500	M	FORT TRYON PLACE	ENTRANCE FROM RIVERSIDE DRIVE		O	P	1	S	3/25/2014	4.200	F	3,280	\$14,514,000	112		
2243150	K	FOSTER AVENUE	BMT SUBWAY, BRIGHTON	T	O		1	S	6/9/2014	4.417	F	3,000	\$13,275,000	314		
2231690	O	FRANCIS LEWIS BOULEVARD	BLP EASTBOUND		A		1	S	3/17/2014	5.033	G	6,000	\$26,550,000	413		
2231700	O	FRANCIS LEWIS BOULEVARD	BLP WESTBOUND		A		1	S	3/18/2014	4.700	F	6,000	\$26,550,000	413		
2231930	O	FRANCIS LEWIS BOULEVARD	BCIP		A		3	S	2/21/2014	4.682	F	9,100	\$40,267,500	407		
2267199	O	FRANCIS LEWIS BOULEVARD	CUNNINGHAM PARK ROAD		O		1	S	5/13/2013	5.033	G	7,085	\$31,351,125	408		
2249450	R	FREMONT AVENUE PEDESTRIAN BRIDGE	SIRT SOUTH SHORE	S	O-PED		3	C	3/12/2014	4.073	F	800	\$3,540,000	502		
224006A	B	FROM BRUCKNER BOULEVARD	RELIEF		OR		5	S	9/14/2013	6.535	VG	14,037	\$62,113,725	201		
226771C	M	GARAGE RAMP TO 79TH STREET	79TH STREET BOAT BASIN GARAGE		AR	P	21	S	5/12/2014	4.435	F	9,095	\$40,245,375	107		
2241420	B	GERARD AVENUE	METRO NORTH RR HUD	M	O		1	S	5/5/2014	5.422	G	5,063	\$22,403,775	204		

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2249360	R	GIFFORDS LANE	SIRT SOUTH SHORE	S	O		1	S	10/15/2014	5.625	G	3,042	\$13,460,850	503		
2243860	K	GLENMORE AVENUE	LIRR BAY RIDGE	N	O		2	S	9/22/2014	6.456	VG	5,616	\$24,850,800	316		
2065940	O	GRAND AVENUE	495I (L.I.E.)		A		2	S	11/11/2014	4.861	F	12,850	\$56,861,250	405		
2247180	O	GRAND AVENUE	LIRR MAIN LINE	L	O		3	S	10/1/2014	4.396	F	7,415	\$32,811,375	404		
2247440	O	GRAND AVENUE	CSX TRANSPORT	C	O		1	S	8/13/2013	6.183	VG	3,280	\$14,514,000	405		
2241409	B	GRAND CONCOURSE	METRO NORTH RR HUD	MT	O		1	S	6/27/2014	3.766	F	14,300	\$63,277,500	204		
2242259	B	GRAND CONCOURSE	EAST 161ST STREET		O		1	S	6/30/2014	6.333	VG	27,017	\$119,550,225	204		
2242280	B	GRAND CONCOURSE	EAST 167TH STREET		O		2	S	7/2/2014	4.754	F	42,900	\$189,832,500	204		
2242299	B	GRAND CONCOURSE	EAST 138TH STREET		O		1	S	6/11/2013	4.867	F	9,500	\$42,037,500	201		
2242300	B	GRAND CONCOURSE	EAST 170TH STREET		O		2	S	3/19/2014	4.754	F	39,300	\$173,902,500	204		
2242319	B	GRAND CONCOURSE	EAST 174TH STREET	T	O		1	S	3/18/2014	4.067	F	14,900	\$65,932,500	204		
2242329	B	GRAND CONCOURSE	EAST 175TH STREET	T	O		1	S	6/11/2014	4.833	F	11,900	\$52,657,500	205		
2242330	B	GRAND CONCOURSE	EAST TREMONT AVENUE		O		1	S	9/12/2013	5.883	G	11,700	\$51,772,500	205		
2242340	B	GRAND CONCOURSE	EAST KINGSBRIDGE		O		2	S	6/12/2014	4.714	F	18,285	\$80,911,125	207		
2242360	B	GRAND CONCOURSE	BURNSIDE AVENUE		O		2	S	6/30/2014	4.265	F	8,400	\$37,170,000	205		
2242370	B	GRAND CONCOURSE	BEDFORD PARK BOULEVARD		O		1	S	2/21/2014	4.373	F	8,418	\$37,249,650	207		
2242380	B	GRAND CONCOURSE	EAST 204TH STREET		O		1	S	9/11/2013	5.484	G	9,272	\$41,028,600	207		
2240390	KO	GRAND STREET BRIDGE	NEWTOWN CREEK		WMO		2	S	10/28/2014	4.069	F	5,100	\$22,567,500	301	405	
2249100	R	GRANITE AVENUE	B&O RR (ABANDONED)	O	O		4	S	2/4/2014	5.966	G	7,300	\$32,302,500	501		
2249370	R	GREAVES AVENUE	SIRT SOUTH SHORE	S	O		1	S	8/22/2013	6.533	VG	2,650	\$11,726,250	503		
2240370	KO	GREENPOINT AVENUE BRIDGE	NEWTOWN CREEK	L	WMO		12	S	8/5/2013	5.083	G	76,106	\$336,769,050	301	402	
2231370	K	GUIDER AVENUE RAMP TO BSHP	BSHP		A		4	S	9/23/2014	6.778	VG	10,548	\$46,674,900	313		
2241910	B	GUN HILL ROAD	NYCTA-DYRE AVENUE LINE	T	O		1	S	10/28/2014	5.516	G	7,500	\$33,187,500	211	212	
2242430	B	GUN HILL ROAD	BRONX BOULEVARD		O		4	S	2/20/2014	4.947	F	9,400	\$41,595,000	212		
2242440	B	GUN HILL ROAD	BRONX RIVER		WO		1	S	1/14/2014	5.300	G	8,700	\$38,497,500	212		
2241860	B	GUN HILL ROD	METRO NORTH RR HAR	M	O		1	S	4/29/2014	6.531	VG	9,128	\$40,391,400	212		
2231610	O	GUY R. BREWER BOULEVARD	BSOP		A		4	S	5/20/2013	6.222	VG	12,342	\$54,613,350	413		
2249380	R	GUYON AVENUE	SIRT SOUTH SHORE	S	O		3	S	10/7/2013	4.770	F	6,900	\$30,532,500	503		
2240231	K	HAMILTON AVENUE BRIDGE	GOWANUS CANAL		WMO		3	S	9/9/2014	5.472	G	7,300	\$32,302,500	307	306	
2240232	K	HAMILTON AVENUE BRIDGE	GOWANUS CANAL		WMO		3	S	8/13/2013	5.361	G	8,611	\$38,103,675	306		
2065930	O	HAMILTON PLACE	495I (L.I.E.)		A		2	S	2/20/2014	5.528	G	11,111	\$49,166,175	405		
2249520	R	HANNAH STREET	SIRT SOUTH SHORE	S	O		10	S	10/18/2013	4.966	F	10,020	\$44,338,500	501		
2249180	R	HARBOR ROAD	CONRAIL - EX B&O RR	C	O		4	S	9/16/2013	6.000	G	5,778	\$25,567,650	501		
2233059	M	HARLEM RIVER DRIVE	EAST 127TH STREET RAMP TO/FROM HRD NORTHBOUND		A		11	S	6/24/2014	3.552	F	51,000	\$225,675,000	111		
2231780	O	HEMPSTEAD AVENUE	BCIP		A		2	S	2/6/2014	4.000	F	14,200	\$62,835,000	413		
2266149	O	HEMPSTEAD AVENUE	BCIP RAMP NORTHBOUND		A		2	S	3/12/2014	4.190	F	9,500	\$42,037,500	413		
2229309	M	HHP	RIVERSIDE PARK		A		1	S	1/13/2014	5.267	G	2,172	\$9,611,100	107		

**INVENTORY SORTED BY FEATURE CARRIED**

BIN	BORO	FEATURE CARRIED	FEATURE CROSSED	RAIL L RO	BRIDGE TYPE	OTHER OWNER	SPA NS	RT NG SR	Inspection Date	Condition Rating	VR BL RT	DECK AREA	REPLACEMENT COST	CD	CD2	CD3
2229349	M	HHP	WEST 158TH STREET	A	A		44	S	10/10/2014	4.155	F	140,000	\$619,500,000	109	112	
2229440	B	HHP	KAPPOCK ST		A		1	S	7/18/2013	4.931	F	3,900	\$17,257,500	208		
2229530	B	HHP	BROADWAY		A		1	S	7/29/2013	4.574	F	7,500	\$33,187,500	208		
2266229	M	HHP	PEDESTRIAN UNDERPASS AT WEST 148TH STREET		A		1	S	1/30/2014	5.000	G	1,840	\$8,142,000	109		
2267250	M	HHP	AMTRAK - WEST 96TH STREET	A	A		55	S	11/1/2014	3.548	F	40,000	\$177,000,000	107		
2229312	M	HHP NORTHBOUND	RAMP TO WEST 96TH STREET		A		1	S	1/27/2014	4.182	F	2,000	\$8,850,000	107		
2229322	M	HHP NORTHBOUND	RAMP FROM WEST 96TH STREET		A		1	S	1/31/2014	5.300	G	2,000	\$8,850,000	107		
2266230	M	HHP NORTHBOUND	PEDESTRIAN UNDERPASS INWOOD PARK		A		1	S	1/23/2014	5.000	G	800	\$3,540,000	112		
M00004	M	HHP ON/OFF RAMP-79TH STREET NORTH SIDE	PEDESTRIAN PATH NORTH OF 79TH STREET		A		1	C	6/6/2014	4.667	F	846	\$3,743,550	107		
M00003	M	HHP ON/OFF RMP-79TH STREET SOUTH SIDE	PEDESTRIAN PATH SOUTH OF 79TH STREET		A		1	C	6/6/2014	4.467	F	846	\$3,743,550	107		
2229311	M	HHP SOUTHBOUND	RAMP TO WEST 96TH STREET		A		1	S	1/28/2014	4.455	F	2,000	\$8,850,000	107		
2229321	M	HHP SOUTHBOUND	RAMP FROM WEST 96TH STREET		A		1	S	1/31/2014	5.133	G	2,000	\$8,850,000	107		
2266240	M	HHP SOUTHBOUND	PEDESTRIAN UNDERPASS INWOOD PARK		A		1	S	1/23/2014	5.526	G	1,100	\$4,867,500	112		
2229289	M	HHP VIADUCT	AMTRAK - WEST 72ND STREET - WEST 79TH STREET	A	A		145	S	9/17/2014	3.597	F	213,173	\$943,290,525	107		
2246580	BM	HIGH BRIDGE PEDESTRIAN OVERPASS	I87 - HARLEM RIVER	M	WA-PED	P	11	P	8/12/2002	3.759	F	34,100	\$150,892,500	112	204	
2230000	K	HIGHLAND BOULEVARD EASTBOUND	JACKIE ROBINSON PARKWAY		A		1	S	3/17/2014	4.724	F	4,900	\$21,682,500	305		
2230220	K	HIGHLAND BOULEVARD NORTHBOUND	VERMONT AVENUE		A		1	S	6/5/2013	5.857	G	3,995	\$17,677,875	305		
2230010	K	HIGHLAND BOULEVARD WESTBOUND	JACKIE ROBINSON PARKWAY		A		1	S	2/25/2014	4.767	F	3,500	\$15,487,500	305		
2230020	K	HIGHLAND BOULEVARD WESTBOUND	JACKIE ROBINSON PARKWAY EASTBOUND ENTRANCE RAMP		A		2	S	3/11/2014	4.974	F	4,700	\$20,797,500	305		
2248280	O	HIGHLAND PARK PEDESTRIAN	PEDESTRIAN PATH		O-PED	P	1	C	12/31/2014	3.667	F	1,900	\$8,407,500	405		
2243780	K	HIGHLAWN AVENUE	BMT SEA BEACH	T	O		1	S	8/16/2013	6.440	VG	6,960	\$30,798,000	311		
2244060	K	HILL DRIVE (CLEFT RIDGE SPAN)	PEDESTRIAN PATH SOUTH OF BOATHOUSE		O	P	1	C	5/1/2014	4.433	F	750	\$3,318,750	355		
2244120	K	HILL DRIVE (TERRACE BRIDGE)	PROSPECT PARK LAKE		WO	P	3	S	9/16/2014	3.436	F	7,800	\$34,515,000	355		
2231840	O	HILLSIDE AVENUE	BCIP		A		2	S	3/18/2014	4.211	F	9,672	\$42,798,600	413		
2247320	O	HONEYWELL STREET	AMTRAK & LIRR YARD	AL	O		22	S	9/26/2013	5.903	G	99,036	\$438,234,300	402	401	
2232040	M	HOUSTON STREET	FDR DRIVE		A		2	S	5/6/2014	3.750	F	11,010	\$48,719,250	103		
223204B	M	HOUSTON STREET RAMP TO FDR DRIVE NORTHBOUND	RELIEF		AR		4	S	1/17/2014	4.792	F	7,125	\$31,528,125	103		
2267240	M	HRD RAMP TO GEORGE WASHINGTON BRIDGE	HARLEM RIVER DRIVE SOUTHBOUND		A		55	S	10/14/2014	3.042	F	122,900	\$543,832,500	112		
2249300	R	HUGUENOT AVENUE	SIRT SOUTH SHORE	S	O		2	S	9/24/2013	4.788	F	4,900	\$21,682,500	503		
2240450	O	HUNTERS POINT AVENUE	DUTCH KILLS		WMO		4	S	5/30/2014	5.056	G	12,168	\$53,843,400	402		
2241190	B	HUNTS POINT AVENUE	AMTRAK - CSX	AC	O		1	S	11/20/2014	4.813	F	10,049	\$44,466,825	202		
2075859	B	HUTCHINSON RIVER PARKWAY	HUTCHINSON RIVER		WMA		7	S	11/7/2014	4.828	F	60,500	\$267,712,500	210	228	
2241959	B	HUTCHINSON RIVER PARKWAY	AMTRAK - CSX	AC	O		1	S	10/9/2014	5.542	G	15,444	\$68,339,700	210	211	
2249810	R	HYLAN BOULEVARD	LEMON CREEK		WO		1	S	3/10/2014	6.172	VG	11,400	\$50,445,000	503		
2245300	M	INWOOD HILL PARK FOOTBRIDGE	AMTRAK 30 STREET BRANCH	A	O-PED	P	6	C	8/6/2013	4.100	F	700	\$3,097,500	112		
2246700	M	ISHAM PARK PEDESTRIAN BRIDGE	HARLEM RIVER INLET		WO-PED	P	1	C	1/29/2014	3.552	F	300	\$1,327,500	112		
2246690	M	ISHAM PARK VEHICULAR	HARLEM RIVER INLET		O	P	1	S	4/28/2014	6.065	VG	911	\$4,031,175	112		

**INVENTORY SORTED BY FEATURE CARRIED**

BIN	BORO	FEATURE CARRIED	FEATURE CROSSED	RAIL L RO	BRIDGE TYPE	OTHER OWNER	SPA NS	RT NG SR	Inspection Date	Condition Rating	VR BL RT	DECK AREA	REPLACEMENT COST	CD	CD2	CD3
2230099	O	JACKIE ROBINSON PARKWAY	CYPRESS HILLS CEMETERY		A		1	S	1/6/2014	5.444	G	4,200	\$18,585,000	405		
2230179	O	JACKIE ROBINSON PARKWAY	METROPOLITAN AVENUE		A		2	S	4/22/2014	5.286	G	8,673	\$38,378,025	482		
2248299	O	JACKIE ROBINSON PARKWAY-UNION TURNPIKE	AUSTIN STREET		O		1	S	5/23/2014	4.806	F	5,900	\$26,107,500	409	406	
2247260	O	JACKSON AVENUE	LIRR MONTAUK DIV	L	O		1	S	10/8/2014	5.550	G	4,517	\$19,987,725	402		
2231819	O	JAMAICA AVENUE	BCIP		A		2	S	3/19/2014	4.773	F	11,500	\$50,887,500	413		
2230287	B	JEROME AVENUE	MOSHOLU PARKWAY	T	A		3	S	5/22/2013	4.816	F	11,800	\$52,215,000	207		
2249070	R	JOHN STREET PEDESTRIAN BRIDGE	B&O RR (ABANDONED)	O	O-PED		2	C	8/15/2014	5.423	G	1,050	\$4,646,250	501		
2247480	O	JUNIPER BOULEVARD SOUTH	CSX TRANSPORT	C	O		1	S	8/16/2013	5.000	G	9,000	\$39,825,000	405		
2230380	K	KANE STREET	2781 (B.O.E.)		A		2	S	3/27/2014	4.153	F	5,000	\$22,125,000	306		
2243770	K	KINGS HIGHWAY	BMT SEA BEACH	T	O		1	S	6/28/2013	6.628	VG	5,032	\$22,266,600	311		
2231449	K	KNAPP STREET	BSHP		A		1	S	4/9/2014	4.313	F	9,500	\$42,037,500	315		
2241169	B	LAFAYETTE AVENUE	AMTRAK - CSX	AC	O		1	S	11/18/2014	5.365	G	12,000	\$53,100,000	202		
2249110	R	LAKE AVENUE	B&O RR (ABANDONED)	O	O		3	S	4/18/2014	5.148	G	5,900	\$26,107,500	501		
2247240	O	LEFFERTS BOULEVARD	LIRR MAIN LINE	L	O		3	S	8/30/2013	5.806	G	5,460	\$24,160,500	409		
2241139	B	LEGGETT AVENUE	AMTRAK - CSX	AC	O		3	S	11/17/2014	4.620	F	41,551	\$183,863,175	202		
2243850	K	LIBERTY AVENUE	LIRR BAY RIDGE	N	O		3	S	9/23/2014	6.103	VG	6,659	\$29,466,075	316		
2249460	R	LINCOLN AVENUE	SIRT SOUTH SHORE	S	O		1	S	9/10/2013	5.190	G	4,500	\$19,912,500	502		
2243190	K	LINCOLN PLACE	FRANKLIN SHUTTLE	T	O		1	S	6/26/2014	6.672	VG	2,460	\$10,885,500	308		
2243010	K	LINCOLN ROAD	BMT SUBWAY, BRIGHTON	T	O		1	S	5/19/2014	6.685	VG	6,243	\$27,625,275	355		
2231750	O	LINDEN BOULEVARD	BCIP		A		2	S	2/25/2014	4.432	F	6,700	\$29,647,500	413		
2243910	K	LIVONIA AVENUE PEDESTRIAN BRIDGE	LIRR BAY RIDGE	N	O-PED		6	C	8/7/2014	4.833	F	2,500	\$11,062,500	316		
2241159	B	LONGWOOD AVENUE	AMTRAK - CSX	AC	O		2	S	11/18/2014	5.236	G	10,625	\$47,015,625	202		
1240090	BM	MACOMBS DAM BRIDGE	HARLEM RIVER	M	WMO		52	S	12/13/2013	3.986	F	220,000	\$973,500,000	110	204	
2240079	BM	MADISON AVENUE BRIDGE	HARLEM RIVER		WMO		21	S	9/17/2014	4.861	F	80,000	\$354,000,000	111	201	
2242210	B	MAGNOLIA WAY	BRONX RIVER		WO	P	3	S	5/6/2014	4.763	F	6,200	\$27,435,000	227		
2249210	R	MAIN STREET PEDESTRIAN BRIDGE	SIRT SOUTH SHORE	S	O-PED		9	C	3/5/2014	4.123	F	400	\$1,770,000	503		
2240027	KM	MANHATTAN BRIDGE (LOWER LEVEL)	EAST RIVER	T	WEO		23	S	10/22/2014	3.889	F	616,390	\$2,727,525,750	103	302	
2240028	KM	MANHATTAN BRIDGE (UPPER LEVEL)	NYCTA TRACKS-BMT	T	WEO		43	S	10/21/2014	3.757	F	587,424	\$2,599,351,200	103	302	
2229480	B	MANHATTAN COLLEGE PARKWAY	HHP		A		3	S	6/3/2013	5.053	G	6,200	\$27,435,000	208		
2245040	M	MARGARET CORBIN DRIVE	PEDESTRIAN PATH NEAR CAFÉ		O	P	1	C	6/9/2014	4.933	F	598	\$2,646,150	112		
2245050	M	MARGARET CORBIN DRIVE	PEDESTRIAN PATH NEAR NORTH ENTRANCE		O	P	1	C	4/8/2014	4.600	F	889	\$3,933,825	112		
2230190	O	MARKWOOD ROAD	JACKIE ROBINSON PARKWAY		A		1	S	1/27/2014	5.167	G	4,400	\$19,470,000	482	406	
2249760	R	MARTLINGS AVENUE	RICHMOND LAKE DAM		WO		2	S	6/24/2013	4.467	F	7,000	\$30,975,000	501		
2269030	B	MATTHEWSON ROAD	MAC CRACKEN AVENUE		O		15	S	10/8/2014	4.175	F	14,880	\$65,844,000	205		
2243410	K	MCDONALD AVENUE	LIRR BAY RIDGE	N	O		1	S	10/1/2014	5.141	G	2,760	\$12,213,000	312		
2248260	O	MEADOW LAKE BRIDGE	MEADOW LAKE		WO	P	5	S	4/29/2014	4.458	F	4,200	\$18,585,000	481		
2241110	B	MELROSE AVENUE	CSX PT MORRIS - (ABANDONED)	C	O		8	S	8/20/2013	5.667	G	37,854	\$167,503,950	203		

**INVENTORY SORTED BY FEATURE CARRIED**

BIN	BORO	FEATURE CARRIED	FEATURE CROSSED	RAIL L RO	BRIDGE TYPE	OTHER OWNER	SPA NS	RT NG SR	Inspection Date	Condition Rating	VR BL RT	DECK AREA	REPLACEMENT COST	CD	CD2	CD3
2231710	O	MERRICK BOULEVARD	BLP NORTHBOUND		A		1	S	2/11/2014	4.467	F	6,000	\$26,550,000	413		
2231720	O	MERRICK BOULEVARD	BLP SOUTHBOUND		A		1	S	2/12/2014	4.200	F	6,000	\$26,550,000	413		
1247560	O	METROPOLITAN AVENUE	LIRR - NY&ATL	LN	O		2	S	9/23/2014	3.603	F	20,900	\$92,482,500	405		
2240290	K	METROPOLITAN AVENUE	ENGLISH KILLS		WMO		5	S	7/9/2013	5.444	G	10,550	\$46,683,750	301		
2247500	O	METROPOLITAN AVENUE	CSX TRANSPORT	C	O		1	S	8/16/2013	4.233	F	18,650	\$82,526,250	405		
2249470	R	MIDLAND AVENUE	SIRT SOUTH SHORE	S	O		1	S	10/29/2013	5.466	G	3,000	\$13,275,000	502		
2257569	M	MILLER HIGHWAY	TERRAIN		A		64	S	12/5/2014	4.352	F	272,475	\$1,205,701,875	104	107	
2249530	R	MINTHORNE STREET PEDESTRIAN BRIDGE	SIRT SOUTH SHORE	S	O-PED		26	C	3/13/2014	4.736	F	6,000	\$26,550,000	501		
2243240	K	MONTGOMERY STREET	FRANKLIN SHUTTLE	T	O		1	S	8/8/2013	5.843	G	2,240	\$9,912,000	309		
2249090	R	MORNINGSTAR ROAD	B&O RR (ABANDONED)	O	O		4	S	5/21/2013	4.898	F	7,900	\$34,957,500	501		
2268930	M	MORRIS STREET PEDESTRIAN BRIDGE	BROOKLYN-BATTERY TUNNEL PLAZA		A-PED		3	C	7/15/2013	3.875	F	1,842	\$8,150,850	101		
2230250	B	MOSHOLU PARKWAY	BRONX RIVER		WA		5	S	1/8/2014	4.263	F	16,300	\$72,127,500	227		
2230260	B	MOSHOLU PARKWAY	METRO NORTH	M	A		1	S	4/30/2014	5.391	G	8,880	\$39,294,000	227	207	
2230270	B	MOSHOLU PARKWAY	WEBSTER AVENUE		A		1	S	5/21/2013	5.203	G	8,480	\$37,524,000	207		
2230290	B	MOSHOLU PARKWAY	EQUESTRIAN PATH		A		1	S	1/13/2014	4.310	F	4,300	\$19,027,500	226		
2230300	B	MOSHOLU PARKWAY	CONRAIL (ABANDONED)	C	A		1	S	7/31/2014	4.271	F	4,600	\$20,355,000	226		
2230310	B	MOSHOLU PARKWAY	SOUTHBOUND RAMP TO HHP		A		2	S	9/16/2013	4.919	F	7,400	\$32,745,000	226		
2248059	O	MOTOR PARKWAY (PEDESTRIAN)	FRANCIS LEWIS BOULEVARD		O-PED	P	2	C	6/13/2014	4.528	F	2,800	\$12,390,000	408		
2248060	O	MOTOR PARKWAY (PEDESTRIAN)	BELL BOULEVARD		O-PED	P	2	C	6/29/2014	4.403	F	2,650	\$11,726,250	411		
2248070	O	MOTOR PARKWAY (PEDESTRIAN)	SPRINGFIELD BOULEVARD		O-PED	P	3	C	6/17/2014	3.639	F	2,900	\$12,832,500	411		
2248080	O	MOTOR PARKWAY (PEDESTRIAN)	HOLLIS COURT BOULEVARD		O-PED	P	3	C	11/18/2014	4.672	F	2,700	\$11,947,500	408		
2248100	O	MOTOR PARKWAY (PEDESTRIAN)	73RD AVENUE		O-PED	P	3	C	2/11/2014	4.672	F	2,600	\$11,505,000	408		
2248110	O	MOTOR PARKWAY (PEDESTRIAN)	ALLEY PARK PEDESTRIAN WALK		O-PED	P	1	C	6/17/2014	4.056	F	1,000	\$4,425,000	413		
2247110	O	MURRAY STREET	LIRR PORT WASH BR	L	O		1	S	8/21/2013	5.222	G	4,000	\$17,700,000	407		
2230120	O	MYRTLE AVENUE	JACKIE ROBINSON PARKWAY		A		1	S	4/17/2014	5.250	G	6,400	\$28,320,000	405	482	
2247620	O	MYRTLE AVENUE	ABANDONED LIRR		O		3	S	1/2/2014	5.028	G	6,725	\$29,758,125	482	406	
2249350	R	NELSON AVENUE PEDESTRIAN BRIDGE	SIRT SOUTH SHORE	S	O-PED		3	C	3/10/2014	4.115	F	300	\$1,327,500	503		
1067150	B	NEREID AVE (EAST 240TH STREET)	BRONX RIVER PARKWAY	M	O		10	S	10/19/2013	4.632	F	57,750	\$255,543,750	212		
2249430	R	NEW DORP LANE	SIRT SOUTH SHORE	S	O		2	S	9/9/2013	4.958	F	7,600	\$33,630,000	502		
2243660	K	NEW UTRECHT AVENUE	LIRR BAY RIDGE	N	O		1	S	10/3/2014	5.883	G	2,350	\$10,398,750	311		
2243140	K	NEWKIRK AVENUE	BMT SUBWAY, BRIGHTON	T	O		3	S	6/17/2014	4.574	F	4,100	\$18,142,500	314		
2240240	K	NINTH STREET BRIDGE	GOWANUS CANAL		WMO		3	S	6/25/2013	6.065	VG	5,772	\$25,541,100	306		
2231670	O	NORTH CONDUIT AVENUE WESTBOUND	BLP EASTBOUND		A		1	S	1/13/2014	4.917	F	4,000	\$17,700,000	413		
2231680	O	NORTH CONDUIT AVENUE WESTBOUND	BLP WESTBOUND		A		2	S	1/20/2014	4.932	F	6,500	\$28,762,500	413		
2269760	R	NORTH RAMP	SIRT	S	O	F	2	S	10/22/2014	6.431	VG	6,000	\$26,550,000	501		
2231870	O	NORTHERN BOULEVARD	BCIP		A		2	S	7/14/2014	5.764	G	9,400	\$41,595,000	411		
2240440	O	NORTHERN BOULEVARD	ALLEY CREEK		WO		2	S	6/17/2014	4.681	F	8,300	\$36,727,500	411		

**INVENTORY SORTED BY FEATURE CARRIED**

BIN	BORO	FEATURE CARRIED	FEATURE CROSSED	RAIL L RO	BRIDGE TYPE	OTHER OWNER	SPA NS	RT NG SR	Inspection Date	Condition Rating	VR BL RT	DECK AREA	REPLACEMENT COST	CD	CD2	CD3
2055802	O	NORTHERN BOULEVARD EASTBOUND	FLUSHING RIVER		WO		40	S	10/28/2014	4.268	F	78,894	\$349,105,950	407		
2055801	O	NORTHERN BOULEVARD WESTBOUND	FLUSHING RIVER		WO		40	S	11/21/2012	4.338	F	71,900	\$318,157,500	407		
205580A	O	NORTHERN BOULEVARD WESTBOUND TO 678I SOUTHBOUND	VACANT LAND		AR		16	S	6/5/2014	5.619	G	8,600	\$38,055,000	407		
2243500	K	NOSTRAND AVENUE	LIRR BAY RIDGE	N	O		2	S	9/29/2014	4.898	F	4,320	\$19,116,000	314		
2240138	BM	NYCTA IRT	HARLEM RIVER/BROADWAY	TM	WMO		3	S	10/9/2013	4.720	F	19,520	\$86,376,000	112	207	208
2243480	K	OCEAN AVENUE	LIRR BAY RIDGE	N	O		2	S	9/16/2014	4.965	F	5,000	\$22,125,000	314		
2240320	K	OCEAN AVENUE PEDESTRIAN BRIDGE	SHEEPSHEAD BAY		WO-PED		30	C	5/8/2014	4.532	F	4,450	\$19,691,250	315		
2243439	K	OCEAN PARKWAY	LIRR BAY RIDGE	N	O		1	S	9/19/2014	4.927	F	7,000	\$30,975,000	312		
2249269	R	PAGE AVENUE	SIRT SOUTH SHORE	S	O		4	S	9/23/2013	5.806	G	30,710	\$135,891,750	503		
2245470	M	PARK AVE NORTHBOUND	EAST 45TH STREET		O		1	S	5/21/2014	4.865	F	2,400	\$10,620,000	105		
2245460	M	PARK AVE SOUTHBOUND	EAST 45TH STREET		O		1	S	5/22/2014	4.514	F	2,400	\$10,620,000	105		
2246550	M	PARK AVENUE VIADUCT	EAST 42ND STREET		O		10	S	12/10/2014	4.478	F	22,150	\$98,013,750	105		
2247600	O	PARK LANE SOUTH	LIRR MONTAUK DIV	L	O		1	S	9/22/2014	6.983	VG	3,024	\$13,381,200	409	482	
2242099	B	PARK ROAD (204TH STREET)	BRONX RIVER		WO		1	S	5/6/2014	4.655	F	4,700	\$20,797,500	212		
224001A	M	PARK ROW TO BROOKLYN	WILLIAM STREET NORTHBOUND		OE		4	S	4/23/2014	4.229	F	10,167	\$44,988,975	101		
2269780	R	PARKING ENTRANCE RAMP	SIRT	S	O	F	3	S	11/7/2014	5.889	G	8,589	\$38,006,325	501		
2269730	R	PARKING EXIT RAMP	SIRT	S	O	F	10	S	11/7/2014	6.097	VG	20,727	\$91,716,975	501		
2243020	K	PARKSIDE AVENUE - OCEAN AVENUE	BMT SUBWAY, BRIGHTON	T	O		6	S	6/18/2014	4.043	F	48,700	\$215,497,500	314		
2247060	O	PARSONS BOULEVARD	LIRR PORT WASH BR	L	O		1	S	9/24/2014	4.824	F	4,200	\$18,585,000	407		
224001C	M	PEARL STREET TO BROOKLYN	LAND ADJACENT TO BRIDGE		OE		9	S	3/28/2014	3.678	F	6,365	\$28,165,125	101		
224001F	M	PEARL STREET TO FDR DRIVE	LAND ADJACENT TO BRIDGE		OE		3	S	7/9/2014	5.141	G	5,200	\$23,010,000	103		
222928C	M	PEDESTRIAN BRIDGE AT WEST 73RD STREET	HHP - AMTRAK	A	A-PED	P	5	C	8/12/2013	3.812	F	3,700	\$16,372,500	107		
2247630	O	PEDESTRIAN BRIDGE NEAR UNION TURNPIKE	ABANDONED LIRR		O-PED		8	C	6/12/2014	4.582	F	1,500	\$6,637,500	406		
2246090	M	PEDESTRIAN BRIDGE OPPOSITE 65TH STREET	TRANSVERSE ROAD #1		O-PED	P	1	C	9/19/2014	4.655	F	2,300	\$10,177,500	164		
2244130	K	PEDESTRIAN NEAR BOATHOUSE (LULLWATER BRIDGE)	PROSPECT PARK LAKE		WO-PED	P	1	C	5/22/2014	4.898	F	1,000	\$4,425,000	355		
2246400	M	PEDESTRIAN PATH OPPOSITE EAST 79TH STREET	TRANSVERSE ROAD #2		O-PED	P	1	C	7/14/2013	4.233	F	3,700	\$16,372,500	164		
2241380	B	PELHAM BAY PARK EQUESTRIAN	AMTRAK - CSX	AC	O-PED	P	1	C	7/24/2013	3.339	F	7,300	\$32,302,500	228		
2231519	K	PENNSYLVANIA AVENUE	BSHP		A		2	S	6/18/2013	5.694	G	6,640	\$29,382,000	356		
2243870	K	PITKIN AVENUE	LIRR BAY RIDGE	N	O		2	S	9/24/2014	6.279	VG	5,328	\$23,576,400	316		
2243210	K	PRESIDENT STREET	FRANKLIN SHUTTLE	T	O		2	S	6/25/2014	5.078	G	2,500	\$11,062,500	309		
2232167	M	PROMENADE OVER FDR DRIVE	FDR DRIVE- EAST 81ST STREET - EAST 90TH STREET		A-PED	P	53	S	7/2/2013	3.143	F	93,000	\$411,525,000	108		
2268760	M	PS-5 PEDESTRIAN BRIDGE	TENTH AVENUE		O-PED		5	C	12/9/2013	4.184	F	1,285	\$5,686,125	112		
2240639	KQ	PULASKI BRIDGE	NEWTOWN CREEK		WMO		44	S	6/5/2014	4.437	F	205,770	\$910,532,250	301	402	
2230209	O	QUEENS BOULEVARD	JACKIE ROBINSON PARKWAY	T	A		5	S	6/9/2014	4.841	F	37,700	\$166,822,500	409		
2230530	O	QUEENS BOULEVARD	278I (B.O.E.)		A		2	S	10/22/2014	6.306	VG	25,543	\$113,027,775	402		
2230869	O	QUEENS BOULEVARD	ACCESS RD BOE SOUTHBOUND		A		1	S	9/30/2014	5.659	G	7,900	\$34,957,500	402		
2247310	O	QUEENS BOULEVARD	AMTRAK & LIRR YARD	AL	O		19	S	12/6/2012	6.268	VG	92,400	\$408,870,000	402	401	



**INVENTORY SORTED BY FEATURE CARRIED**

BIN	BORO	FEATURE CARRIED	FEATURE CROSSED	RAIL RO	BRIDGE TYPE	OTHER OWNER	SPA NS	RT NG SR	Inspection Date	Condition Rating	VR BL RT	DECK AREA	REPLACEMENT COST	CD	CD2	CD3
2240047	MO	QUEENSBORO BRIDGE (LOWER LEVEL)	EAST RIVER	AL	WEO		53	S	11/12/2014	4.167	F	626,900	\$2,774,032,500	108	402	401
2240048	MQ	QUEENSBORO BRIDGE (UPPER LEVEL)	EAST RIVER - LL		WEO		37	S	10/13/2014	4.340	F	322,300	\$1,426,177,500	108	402	401
224005A	M	RAMP FROM FDR DRIVE	HARLEM RIVER DR NORTHBOUND		OR		11	S	11/7/2014	6.887	VG	28,233	\$124,931,025	111		
2248040	Q	RAMP TO LINDEN BOULEVARD	SOUTH CONDUIT AVENUE		O		1	S	5/15/2014	5.200	G	3,352	\$14,832,600	410		
224007A	M	RAMP TO MADISON AVENUE	EAST 138TH STREET		OR		7	S	2/6/2014	5.028	G	19,880	\$87,969,000	111		
223201D	M	RAMP TO NORTHBOUND FDR DRIVE	FDR DRIVE & SOUTH STREET		AR		22	S	2/25/2014	4.967	F	15,825	\$70,025,625	101	103	
222934A	M	RAMP TO NORTHBOUND HHP	AMTRAK WEST SIDE	A	AR		26	S	6/30/2014	3.764	F	10,800	\$47,790,000	112		
2240350	R	RICHMOND AVENUE	RICHMOND CREEK		WO		3	S	7/1/2013	5.472	G	32,589	\$144,206,325	502		
2249270	R	RICHMOND VALLY ROAD	SIRT SOUTH SHORE	S	O		4	S	9/13/2013	5.164	G	9,440	\$41,772,000	503		
2244150	K	RIDGE BOULEVARD	SHORE ROAD DRIVE		O		1	S	6/10/2013	6.333	VG	4,350	\$19,248,750	310		
2240660	O	RIKERS ISLAND BRIDGE	RIKERS ISLAND CHANNEL		WO		56	S	9/26/2013	4.211	F	183,100	\$810,217,500	401	480	
2241430	B	RIVER AVENUE	METRO NORTH RR HUD	M	O		1	S	8/30/2013	6.156	VG	5,040	\$22,302,000	204		
2229510	B	RIVERDALE AVENUE	HHP		A		2	S	7/22/2013	5.079	G	5,200	\$23,010,000	208		
2246660	M	RIVERSIDE DRIVE	WEST 125TH STREET - WEST 134TH STREET		O		27	S	7/12/2013	4.472	F	148,300	\$656,227,500	109		
2246720	M	RIVERSIDE DRIVE	WEST 158TH STREET - AMTRAK	A	O		77	S	10/24/2014	3.528	F	185,658	\$821,536,650	109	112	
2246970	M	RIVERSIDE DRIVE	WEST 96TH STREET		O		3	S	5/6/2013	5.471	G	10,600	\$46,905,000	107		
2246980	M	RIVERSIDE DRIVE	WEST 138TH STREET		O		1	S	1/16/2014	4.900	F	6,700	\$29,647,500	109		
2267130	M	RIVERSIDE DRIVE	WEST 145TH STREET		O		1	S	4/29/2013	5.133	G	5,800	\$25,665,000	109		
2269240	M	RIVERSIDE DRIVE	WEST 155TH STREET		O		1	S	4/25/2013	4.640	F	2,780	\$12,301,500	109	112	
2269200	M	RIVERSIDE DRIVE SOUTH	AMTRAK	A	O		11	S	11/4/2013	6.069	VG	69,040	\$305,502,000	107		
2248369	O	ROCKAWAY BOULEVARD	THURSTON BASIN		WO		2	S	7/16/2013	5.474	G	6,000	\$26,550,000	483	413	
2300130	Q	ROCKAWAY BOULEVARD	HOOK CREEK		WO		3	S	7/15/2013	6.271	VG	18,302	\$80,986,350	413		
2230587	Q	ROOSEVELT AVENUE	278I (B.O.E.)		A		2	S	9/24/2013	5.889	G	11,022	\$48,772,350	402		
2240507	Q	ROOSEVELT AVENUE	678I - FLUSHING RIVER		WA		27	S	11/7/2014	3.521	F	84,424	\$373,576,200	407	481	
2247380	Q	ROOSEVELT AVENUE	CSX - HELLGATE	C	O		2	S	8/1/2013	6.333	VG	7,380	\$32,656,500	402	403	404
2267160	Q	ROOSEVELT AVENUE	SHEA ROAD		O		4	S	7/29/2013	4.873	F	7,280	\$32,214,000	408		
2240640	MQ	ROOSEVELT ISLAND BRIDGE	EAST RIVER EAST CHANNEL		WMO		8	S	10/29/2014	5.569	G	36,500	\$161,512,500	108	401	
2249420	R	ROSE AVENUE	SIRT SOUTH SHORE	S	O		2	S	8/21/2013	5.258	G	3,800	\$16,815,000	502		
2249410	R	ROSS AVENUE	SIRT SOUTH SHORE	S	O		2	S	8/20/2013	5.379	G	3,800	\$16,815,000	502		
2248200	O	RUST STREET	FLUSHING AVENUE		O		1	S	6/21/2013	4.922	F	2,940	\$13,009,500	405		
2230370	K	SACKETT STREET	278I (B.O.E.)		A		2	S	3/19/2014	4.500	F	5,000	\$22,125,000	306		
2244470	K	SEELEY STREET	PROSPECT AVENUE		O		1	S	7/25/2014	4.033	F	8,482	\$37,532,850	307		
2249290	R	SEGUINE AVENUE	SIRT SOUTH SHORE	S	O		1	S	8/30/2013	6.016	VG	3,250	\$14,381,250	503		
2248220	Q	SERVICE ROAD TURNAROUND	FLUSHING AVENUE		O		1	S	6/21/2013	5.078	G	2,940	\$13,009,500	405		
2240200	B	SHORE ROAD	HUTCHINSON RIVER		WMO		7	S	5/30/2014	4.537	F	43,576	\$192,823,800	228		
2241390	B	SHORE ROAD CIRCLE	AMTRAK - CSX	AC	O		1	S	7/21/2014	7.000	VG	8,067	\$35,696,475	228		
2249120	R	SIMONSON AVENUE	B&O RR (ABANDONED)	O	O		3	S	5/15/2013	5.852	G	5,819	\$25,749,075	501		

**INVENTORY SORTED BY FEATURE CARRIED**

BIN	BORO	FEATURE CARRIED	FEATURE CROSSED	RAIL RO	BRIDGE TYPE	OTHER OWNER	SPANS	RT NG SR	Inspection Date	Condition Rating	VR BL RT	DECK AREA	REPLACEMENT COST	CD	CD2	CD3
2249860	R	SLATER BOULEVARD	NEW CREEK		WO		1	S	5/17/2013	5.510	G	2,037	\$9,013,725	502		
2242220	B	SNUFF MILL ROAD	BRONX RIVER		WO	P	2	S	1/9/2014	4.395	F	4,800	\$21,240,000	227		
2249200	R	SOUTH AVENUE	ARLINGTON YARD	C	O		3	S	9/17/2013	6.527	VG	8,500	\$37,612,500	501		
2231560	O	SOUTH CONDUIT BOULEVARD	BSOP		A		2	S	6/16/2014	5.268	G	15,776	\$69,808,800	410		
2249770	R	SOUTH OF BROOKS LAKE	STREAM IN PARK		WO-PED	P	3	C	11/26/2013	4.946	F	700	\$3,097,500	501		
223201B	M	SOUTH STREET RAMP TO FDR DRIVE SOUTHBOUND	SOUTH STREET		AR		10	S	2/24/2014	3.791	F	13,388	\$59,241,900	101		
226771D	M	SOUTHBOUND HHP RAMP TO 79TH STREET	79TH STREET BOAT BASIN GARAGE		AR	P	4	S	5/8/2014	4.403	F	2,601	\$11,509,425	107		
2241080	B	SOUTHERN BOULEVARD	CSX PT MORRIS - (ABANDONED)	C	O		1	S	7/1/2014	4.093	F	3,900	\$17,257,500	201		
2242029	B	SOUTHERN BOULEVARD	EAST FORDHAM ROAD		O		2	S	1/29/2014	4.605	F	12,900	\$57,082,500	227		
2231630	O	SPRINGFIELD BOULEVARD	BSOP		A		2	S	4/25/2014	4.591	F	8,500	\$37,612,500	413		
2268770	O	SPRINGFIELD BOULEVARD	EQUESTRIAN PATH (ABANDONED)		O		1	S	5/9/2013	5.000	G	1,470	\$6,504,750	413		
2243180	K	ST JOHNS PLACE	FRANKLIN SHUTTLE	T	O		1	S	8/23/2013	6.656	VG	2,300	\$10,177,500	308		
2241700	B	ST PAULS PLACE PEDESTRIAN BRIDGE	METRO NORTH RR HAR	M	O-PED		2	C	10/24/2014	4.887	F	888	\$3,929,400	203		
2241060	B	ST. MARYS & CONCORD	CSX PT MORRIS - (ABANDONED)	C	O		1	S	7/2/2014	5.370	G	4,500	\$19,912,500	201		
2270170	R	STATEN ISLAND FERRY PEDESTRIAN BRIDGE	PARKING LOT EXIT ROADWAY		O-PED	F	5	C	7/28/2014	5.583	G	2,917	\$12,907,725	501		
2230600	O	STEINWAY STREET	278I WESTBOUND (BOE)		A		1	S	8/7/2014	6.349	VG	5,229	\$23,138,325	401		
2230610	O	STEINWAY STREET	278I EASTBOUND (BOE)		A		1	S	8/8/2014	6.349	VG	5,146	\$22,771,050	401		
2243170	K	STERLING PLACE	FRANKLIN SHUTTLE	T	O		1	S	8/23/2013	6.438	VG	2,300	\$10,177,500	308		
2240540	K	STILLWELL AVENUE	CONEY ISLAND CREEK		WO		2	S	6/12/2013	6.292	VG	17,000	\$75,225,000	313		
2230350	K	SUMMIT STREET PEDESTRIAN BRIDGE	278I (B.O.E.)		A-PED		2	S	4/4/2014	4.557	F	1,400	\$6,195,000	306		
2231650	O	SUNRISE HWY WESTBOUND	BLP EASTBOUND		A		1	S	3/21/2014	4.262	F	4,100	\$18,142,500	413		
2231660	O	SUNRISE HWY WESTBOUND	BLP WESTBOUND		A		2	S	2/25/2014	4.565	F	5,350	\$23,673,750	413		
2231800	O	SUPERIOR ROAD	BCIP		A		2	S	4/1/2014	4.682	F	7,000	\$30,975,000	413		
2243890	K	SUTTER AVENUE	LIRR BAY RIDGE	N	O		3	S	9/26/2014	6.292	VG	5,497	\$24,324,225	316		
2247300	O	THOMPSON AVENUE	AMTRAK & LIRR YARD	AL	O		14	S	12/6/2012	5.042	G	61,280	\$271,164,000	402		
2241170	B	TIFFANY STREET	AMTRAK - CSX	AC	O		1	S	11/18/2013	5.745	G	7,267	\$32,156,475	202		
224004H	O	TO 21ST STREET FROM NY	22ND STREET		OE		43	S	10/13/2014	4.366	F	48,100	\$212,842,500	402		
224001B	M	TO BROOKLYN FROM FDR DRIVE	FRANKFORT & PEARL STREETS		OE		31	S	8/1/2014	4.926	F	51,400	\$227,445,000	101	103	
224005B	B	TO BRUCKNER BOULEVARD	RELIEF		OR		4	S	10/3/2013	6.831	VG	19,990	\$88,455,750	201		
224004A	M	TO EAST 60TH STREET FROM QUEENS	FIRST AVENUE		OE		13	S	4/21/2014	5.338	G	14,800	\$65,490,000	108		
224004C	M	TO EAST 62ND STREET FROM QUEENS	EAST 60TH - EAST 61ST STREET		OE		10	S	7/17/2014	4.985	F	16,720	\$73,986,000	108		
224001D	M	TO FDR DIVE NORTHBOUND	PEARL STREET		OE		30	S	9/18/2014	4.679	F	49,600	\$219,480,000	101	103	
2245480	M	TO GEORGE WASHINGTON BRIDGE OPPOSITE WEST 171ST STREET	RIVERSIDE DRIVE		O		1	S	2/24/2014	4.524	F	10,773	\$47,670,525	112		
224004G	O	TO NY FROM 11TH STREET	TERRAIN (CHAMBER)		OE		36	S	7/25/2014	5.268	G	8,360	\$36,993,000	401	402	
224004F	O	TO NY FROM 21ST STREET	21ST STREET		OE		63	S	11/7/2014	4.712	F	63,310	\$280,146,750	402	401	
224004E	O	TO NY FROM THOMSON AVENUE	JACKSON AVENUE	L	OE		94	S	11/26/2014	4.679	F	104,600	\$462,855,000	402		
224001G	M	TO PARK ROW	ROSE STREET		OE		11	S	4/9/2014	4.549	F	16,551	\$73,238,175	101		

**INVENTORY SORTED BY FEATURE CARRIED**

BIN	BORO	FEATURE CARRIED	FEATURE CROSSED	RAIL RO	BRIDGE TYPE	OTHER OWNER	SPANS	RT NG SR	Inspection Date	Condition Rating	VR BL RT	DECK AREA	REPLACEMENT COST	CD	CD2	CD3
224001E	M	TO PEARL STREET	LAND ADJACENT TO BRIDGE		OE		3	S	6/2/2014	5.197	G	5,300	\$23,452,500	101		
224004D	M	TO QUEENS FROM EAST 58TH STREET	EAST 59TH STREET		OE		12	S	6/13/2014	4.396	F	10,858	\$48,046,650	106	108	
224004B	M	TO QUEENS FROM EAST 59TH STREET	FIRST AVENUE		OE		13	S	4/22/2014	5.542	G	14,800	\$65,490,000	108		
224004I	Q	TO THOMSON AVENUE FROM NY	JACKSON AVENUE	L	OE		39	S	11/21/2014	5.148	G	59,100	\$261,517,500	402		
2249040	R	TOMPKINS AVENUE	B&O RR (ABANDONED)		O		1	S	4/4/2014	5.953	G	5,096	\$22,549,800	501		
2249510	R	TOMPKINS AVENUE	WILLOW AVENUE, SIRT	S	O		2	S	10/17/2014	5.269	G	5,378	\$23,797,650	501		
2249840	R	TOMPKINS AVENUE	GREENFIELD AVENUE		O		1	S	3/10/2014	4.638	F	2,690	\$11,903,250	501		
2249230	R	TRACY AVENUE PEDESTRIAN BRIDGE	SIRT SOUTH SHORE	S	O-PED		9	C	3/5/2014	3.894	F	635	\$2,809,875	503		
2245380	M	TRANSVERSE ROAD #1 WESTBOUND	PEDESTRIAN PATH OPPOSITE EAST 66TH STREET		O	P	1	S	1/15/2014	5.000	G	1,500	\$6,637,500	164		
2246410	M	TRANSVERSE ROAD 1 EASTBOUND (DENESMOUTH ARCH)	PEDESTRIAN PATH OPPOSITE EAST 65TH STREET		O	P	1	S	2/24/2014	4.636	F	1,739	\$7,695,075	164		
2249870	R	TRAVIS AVENUE	MAIN CREEK		WO		1	S	10/16/2013	5.483	G	1,700	\$7,522,500	502		
2246560	M	TUDOR CITY PLACE	EAST 42ND STREET		O		1	S	1/24/2014	5.133	G	6,600	\$29,205,000	106		
2249170	R	UNION AVENUE	B&O RR (ABANDONED)	O	O		4	S	5/14/2013	5.315	G	6,500	\$28,762,500	501		
2230360	K	UNION STREET	278I (B.Q.E.)		A		2	S	3/19/2014	4.236	F	5,000	\$22,125,000	306		
2240270	K	UNION STREET	GOWANUS CANAL		WMO		5	S	8/15/2014	4.111	F	4,900	\$21,682,500	306		
2243200	K	UNION STREET	FRANKLIN SHUTTLE	T	O		2	S	6/25/2014	4.913	F	4,100	\$18,142,500	309		
2247040	O	UNION STREET	LIRR PORT WASH BR	L	O		1	S	8/22/2013	6.172	VG	3,313	\$14,660,025	407		
2230180	O	UNION TURNPIKE	JACKIE ROBINSON PARKWAY		A		1	S	1/27/2014	5.672	G	5,359	\$23,713,575	482		
2231850	O	UNION TURNPIKE	BCIP		A		2	S	3/19/2014	4.409	F	13,600	\$60,180,000	413		
2248129	O	UNION TURNPIKE	CREEDMOORE HOSPITAL ROAD		O		1	S	6/7/2013	4.867	F	3,500	\$15,487,500	413		
2241330	B	UNIONPORT ROAD	AMTRAK - CSX	AC	O		1	S	10/28/2014	4.688	F	7,631	\$33,767,175	211		
2231910	Q	UTOPIA PARKWAY	BCIP		A		2	S	3/7/2014	5.341	G	7,200	\$31,860,000	407		
2229550	B	VAN CORTLANDT EQUESTRIAN	HHP		A-PED	P	2	C	7/16/2014	4.440	F	2,100	\$9,292,500	226		
2229540	B	VAN CORTLANDT PARK	HHP		A-PED	P	2	C	7/14/2014	4.759	F	3,900	\$17,257,500	226		
2249130	R	VAN NAME AVENUE	B&O RR (ABANDONED)	O	O		3	S	4/16/2014	5.186	G	5,474	\$24,222,450	501		
2249140	R	VAN PELT AVENUE	B&O RR (ABANDONED)	O	O		3	S	5/16/2013	5.576	G	5,000	\$22,125,000	501		
2241070	B	WALES AVENUE	CSX PT MORRIS - (ABANDONED)	C	O		1	S	7/2/2014	6.467	VG	2,535	\$11,217,375	201		
2241410	B	WALTON AVENUE	METRO NORTH RR HUD	M	O		1	S	5/5/2014	4.406	F	3,600	\$15,930,000	204		
2240620	M	WARDS ISLAND PEDESTRIAN BRIDGE	HARLEM RIVER		WMO-PED		10	C	4/2/2014	4.667	F	19,500	\$86,287,500	111		
2243250	K	WASHINGTON AVENUE	FRANKLIN SHUTTLE	T	O		1	S	6/24/2014	6.000	G	3,657	\$16,182,225	309	355	
2066919	BM	WASHINGTON BRIDGE	HARLEM RIVER	M	WO		9	S	11/29/2012	4.642	F	128,339	\$567,900,075	112	205	204
226672A	M	WEST 31ST STREET	AMTRAK LAYUP TRACKS	A	O		9	S	11/15/2014	3.619	F	8,800	\$38,940,000	104		
224501B	M	WEST 33RD STREET	AMTRAK 30 STREET BRANCH	A	OR		8	S	3/7/2014	4.500	F	16,500	\$73,012,500	104		
224501C	M	WEST 33RD STREET	LAND ADJACENT TO AMTRAK	A	OR		2	S	5/14/2013	4.472	F	2,360	\$10,443,000	104		
224501D	M	WEST 34TH STREET	AMTRAK 30 STREET BRANCH	A	OR		4	S	5/13/2013	4.542	F	11,800	\$52,215,000	104		
224501E	M	WEST 35TH STREET	AMTRAK 30 STREET BRANCH	A	OR		3	S	7/29/2014	4.181	F	6,500	\$28,762,500	104		
224501F	M	WEST 36TH STREET	AMTRAK 30 STREET BRANCH	A	OR		3	S	11/12/2013	4.612	F	5,520	\$24,426,000	104		

**INVENTORY SORTED BY FEATURE CARRIED**

BIN	BORO	FEATURE CARRIED	FEATURE CROSSED	RAIL RO	BRIDGE TYPE	OTHER OWNER	SPA NS	RT NG SR	Inspection Date	Condition Rating	VR BL RT	DECK AREA	REPLACEMENT COST	CD	CD2	CD3
2245060	M	WEST 37TH STREET	AMTRAK 30 STREET BRANCH	A	O		3	S	11/12/2013	6.190	VG	7,505	\$33,209,625	104		
2245070	M	WEST 38TH STREET	AMTRAK 30 STREET BRANCH	A	O		2	S	7/8/2014	4.135	F	6,200	\$27,435,000	104		
2245080	M	WEST 39TH STREET	AMTRAK 30 STREET BRANCH	A	O		3	S	7/8/2014	4.173	F	6,300	\$27,877,500	104		
2245440	M	WEST 40TH STREET	AMTRAK 30 STREET BRANCH	A	O		4	S	7/23/2014	4.103	F	9,400	\$41,595,000	104		
2245330	M	WEST 41ST STREET	AMTRAK 30 STREET BRANCH	A	O		3	S	7/24/2014	4.444	F	6,200	\$27,435,000	104		
2245210	M	WEST 42ND STREET	AMTRAK 30 STREET BRANCH	A	O		4	S	11/5/2014	4.587	F	10,300	\$45,577,500	104		
2245090	M	WEST 43RD STREET	AMTRAK 30 STREET BRANCH	A	O		2	S	4/18/2014	4.662	F	4,140	\$18,319,500	104		
2245100	M	WEST 44TH STREET	AMTRAK 30 STREET BRANCH	A	O		2	S	4/18/2014	4.559	F	4,300	\$19,027,500	104		
2245110	M	WEST 45TH STREET	AMTRAK 30 STREET BRANCH	A	O		2	S	4/29/2014	5.338	G	4,100	\$18,142,500	104		
2245120	M	WEST 46TH STREET	AMTRAK 30 STREET BRANCH	A	O		2	S	4/29/2014	4.500	F	4,100	\$18,142,500	104		
2245130	M	WEST 47TH STREET	AMTRAK 30 STREET BRANCH	A	O		2	S	5/6/2014	4.721	F	4,100	\$18,142,500	104		
2245140	M	WEST 48TH STREET	AMTRAK 30 STREET BRANCH	A	O		2	S	5/6/2014	4.618	F	4,100	\$18,142,500	104		
2245150	M	WEST 49TH STREET	AMTRAK 30 STREET BRANCH	A	O		3	S	5/6/2014	4.426	F	4,100	\$18,142,500	104		
2245340	M	WEST 50TH STREET	AMTRAK 30 STREET BRANCH	A	O		2	S	5/13/2014	4.500	F	4,100	\$18,142,500	104		
2245160	M	WEST 51ST STREET	AMTRAK 30 STREET BRANCH	A	O		2	S	5/13/2014	4.853	F	4,300	\$19,027,500	104		
2245170	M	WEST 52ND STREET	AMTRAK 30 STREET BRANCH	A	O		2	S	5/13/2014	5.191	G	4,300	\$19,027,500	104		
2245180	M	WEST 53RD STREET	AMTRAK 30 STREET BRANCH	A	O		2	S	5/20/2014	5.221	G	5,100	\$22,567,500	104		
2245350	M	WEST 54TH STREET	AMTRAK 30 STREET BRANCH	A	O		2	S	5/20/2014	5.492	G	4,700	\$20,797,500	104		
2245360	M	WEST 55TH STREET	AMTRAK 30 STREET BRANCH	A	O		2	S	5/20/2014	5.529	G	4,300	\$19,027,500	104		
2245370	M	WEST 56TH STREET	AMTRAK 30 STREET BRANCH	A	O		2	S	5/20/2014	5.397	G	4,400	\$19,470,000	104		
2245220	M	WEST 57TH STREET	AMTRAK 30 STREET BRANCH	A	O		3	S	5/20/2014	4.853	F	9,100	\$40,267,500	104		
2245190	M	WEST 58TH STREET	AMTRAK 30 STREET BRANCH	A	O		2	S	5/20/2014	4.706	F	4,100	\$18,142,500	104		
2246010	M	WEST 62ND STREET PEDESTRIAN BRIDGE (PINEBANK ARCH)	BRIDLE PATH		O-PED	P	1	C	7/22/2014	4.654	F	1,000	\$4,425,000	164		
2245420	M	WEST 65TH STREET ENTRANCE EASTBOUND	BRIDLE PATH WEST END		O	P	1	S	1/14/2014	5.100	G	1,300	\$5,752,500	164		
2269210	M	WEST 68TH STREET	AMTRAK	A	O		3	S	11/5/2013	6.593	VG	5,382	\$23,815,350	107		
2269190	M	WEST 70TH STREET	AMTRAK	A	O		3	S	11/19/2013	5.542	G	17,258	\$76,366,650	107		
2246140	M	WEST 72ND STREET ENTRANCE (RIFTSTONE ARCH)	BRIDLE PATH		O	P	1	S	1/8/2014	4.467	F	3,600	\$15,930,000	164		
222928D	M	WEST 72ND STREET RAMP TO HHP NORTHBOUND	RELIEF		AR		1	S	7/18/2014	6.648	VG	1,750	\$7,743,750	107		
2246460	M	WEST 77TH STREET ENTRANCE (EAGLEVALE ARCH)	PEDESTRIAN PATH OPPOSITE WEST 77TH STREET		O	P	2	S	1/9/2014	4.263	F	3,066	\$13,567,050	164		
2246340	M	WEST 77TH STREET PEDESTRIAN (LADIES POND BRIDGE)	STREAM TO THE LAKE		WO-PED	P	3	C	10/17/2014	4.355	F	500	\$2,212,500	164		
2246320	M	WEST 77TH STREET PEDESTRIAN (OAK BRIDGE)	THE LAKE		WO-PED	P	3	C	4/8/2014	5.474	G	1,100	\$4,867,500	164		
2229290	M	WEST 79TH STREET	AMTRAK	A	A		1	S	6/11/2014	4.424	F	4,500	\$19,912,500	107		
2246380	M	WEST 86TH STREET PEDESTRIAN (SOUTHWEST RESERVOIR BRIDGE)	BRIDLE PATH		O-PED	P	1	C	10/17/2014	4.852	F	700	\$3,097,500	164		
2246430	M	WEST 110TH STREET ENTRANCE (MOUNTCLIFF ARCH)	PEDESTRIAN PATH OPPOSITE WEST 109TH STREET		O	P	1	S	2/24/2014	4.317	F	1,200	\$5,310,000	164		
2246670	M	WEST 134TH STREET	TERRAIN		O		4	S	6/13/2013	4.870	F	7,500	\$33,187,500	109		
2245230	M	WEST 148TH STREET PEDESTRIAN BRIDGE	AMTRAK 30 STREET BRANCH	A	O-PED	P	5	C	8/9/2013	4.200	F	1,100	\$4,867,500	109		
2246710	M	WEST 153RD STREET	A.C. POWELL BLVD		O		1	S	1/31/2014	4.611	F	3,082	\$13,637,850	110		

**INVENTORY SORTED BY FEATURE CARRIED**

BIN	BORO	FEATURE CARRIED	FEATURE CROSSED	RAIL L RO	BRIDGE TYPE	OTHER OWNER	SPA NS	RT NG SR	Inspection Date	Condition Rating	VR BL RT	DECK AREA	REPLACEMENT COST	CD	CD2	CD3
2245290	M	WEST 155TH STREET PEDESTRIAN BRIDGE	AMTRAK 30 STREET BRANCH	A	O-PED		3	C	7/30/2013	3.862	F	800	\$3,540,000	109	112	
2245250	M	WEST 158TH STREET	AMTRAK 30 STREET BRANCH	A	O		7	S	10/18/2013	5.903	G	29,170	\$129,077,250	112		
2245260	M	WEST 173RD SREEET PEDESTRIAN BRIDGE	AMTRAK 30 STREET BRANCH	A	O-PED	P	2	C	8/6/2013	4.600	F	1,500	\$6,637,500	112		
2246600	M	WEST 176TH STREET PEDESTRIAN BRIDGE	APPROACH TO GEORGE WASHINGTON BRIDGE		O-PED	P	1	C	3/7/2014	4.200	F	1,200	\$5,310,000	112		
2246489	M	WEST 181ST STREET	RAMP TO WASHINGTON BRIDGE		O		1	S	1/30/2014	5.200	G	8,200	\$36,285,000	112		
2229400	M	WEST 181ST STREET PEDESTRIAN BRIDGE	HHP NORTHBOUND		A-PED	P	7	C	2/25/2014	4.493	F	1,500	\$6,637,500	112		
M00001	M	WEST 191ST STREET PEDESTRIAN TUNNEL	BROADWAY - IRT #1 SUBWAY		O-PED		1	C	12/9/2014	4.364	F	2,000	\$8,850,000	112		
2241940	B	WEST 205TH STREET	NYCTA IND YARDS	T	O		4	S	10/31/2014	5.514	G	32,508	\$143,847,900	207		
2240120	BM	WEST 207TH STREET/WEST FORDHAM ROAD	HARLEM RIVER		WMO		5	S	7/31/2014	5.000	G	31,784	\$140,644,200	112	207	
2241489	B	WEST 225TH STREET	CSX TRASP - PUTNAM	C	O		2	S	8/28/2014	5.269	G	10,900	\$48,232,500	207	208	
2241490	B	WEST 230TH STREET	CSX PUTNAM (ABANDONED)		O		1	S	5/8/2013	5.625	G	5,600	\$24,780,000	208		
2241509	B	WEST 231ST STREET	CSX PUTNAM (ABANDONED)		O		1	S	7/3/2014	4.745	F	4,723	\$20,899,275	208		
2229450	B	WEST 232ND STREET	HHP		A		2	S	7/22/2013	5.026	G	4,900	\$21,682,500	208		
2241510	B	WEST 233RD STREET	CSX PUTNAM (ABANDONED)		O		1	S	5/8/2013	5.275	G	3,760	\$16,638,000	208		
2241520	B	WEST 234TH STREET	CSX PUTNAM (ABANDONED)		O		1	S	5/8/2013	5.176	G	3,770	\$16,682,250	208		
2229460	B	WEST 236TH STREET PEDESTRIAN BRIDGE	HHP		A-PED		3	C	7/7/2014	4.443	F	2,500	\$11,062,500	208		
2229470	B	WEST 239TH STREET	HHP		A		2	S	6/3/2013	5.053	G	6,100	\$26,992,500	208		
2229490	B	WEST 246TH STREET	HHP		A		2	S	6/3/2013	4.868	F	5,600	\$24,780,000	208		
2229500	B	WEST 252ND STREET	HHP		A		2	S	1/27/2014	5.372	G	4,500	\$19,912,500	208		
2231860	O	WEST ALLEY ROAD	BCIP		A		2	S	7/17/2013	5.368	G	7,200	\$31,860,000	411		
2246120	M	WEST DRIVE	TRANSVERSE ROAD #1		O	P	1	S	3/25/2014	4.700	F	7,900	\$34,957,500	164		
2246240	M	WEST DRIVE	TRANSVERSE ROAD #2		O	P	1	S	3/12/2014	4.167	F	7,200	\$31,860,000	164		
2246260	M	WEST DRIVE	TRANSVERSE ROAD #3		O	P	1	S	3/18/2014	4.800	F	5,100	\$22,567,500	164		
2246280	M	WEST DRIVE	TRANSVERSE ROAD #4		O	P	1	S	3/21/2014	4.167	F	4,700	\$20,797,500	164		
2246330	M	WEST DRIVE (BALCONY BRIDGE)	STREAM TO THE LAKE		WO	P	1	S	1/15/2014	5.000	G	1,817	\$8,040,225	164		
2246080	M	WEST DRIVE (DALEHEAD ARCH)	BRIDLE OPPOSITE WEST 64TH STREET		O	P	1	S	1/14/2014	4.667	F	2,000	\$8,850,000	164		
2246000	M	WEST DRIVE (GREYSHOT ARCH)	PEDESTRIAN PATH BETWEEN 61ST & 62ND STREETS		O	P	1	S	1/8/2014	5.400	G	2,500	\$11,062,500	164		
2244020	K	WEST DRIVE (MEADOWPORT ARCH)	PEDESTRIAN PATH NEAR GRAND ARMY PLAZA		O	P	1	S	5/16/2013	5.321	G	2,500	\$11,062,500	355		
2246360	M	WEST DRIVE (WINTERDALE ARCH)	PEDESTRIAN PATH OPPOSITE WEST 82ND STREET		O	P	1	S	1/16/2014	5.182	G	2,502	\$11,071,350	164		
2244100	K	WEST FOOTBRIDGE	PROSPECT PARK STREAM		WO-PED	P	1	C	1/24/2014	4.889	F	308	\$1,362,900	355		
2249710	R	WEST FOOTBRIDGE	CLOVE LAKE		WO-PED	P	2	C	4/28/2014	3.857	F	900	\$3,982,500	501		
2241470	B	WEST FORDHAM ROAD	METRO NORTH RR HUD	M	O		4	S	9/9/2013	5.694	G	16,052	\$71,030,100	207		
2267380	M	WEST STREET	RECTOR STREET - BROOKLYN BATTERY MANHATTAN PLAZA		AT		1	S	11/19/2013	5.033	G	25,760	\$113,988,000	101		
2241460	B	WEST TREMONT AVENUE	METRO NORTH RR HUD	M	O		8	S	6/12/2014	3.776	F	12,900	\$57,082,500	205		
2075837	B	WESTCHESTER AVENUE	HUTCHINSON RIVER PARKWAY		A		2	S	2/27/2014	4.097	F	15,858	\$70,171,650	210	211	
2240180	B	WESTCHESTER AVENUE	BRONX RIVER		WO		1	S	8/22/2013	4.667	F	5,476	\$24,231,300	202	209	
2241000	B	WESTCHESTER AVENUE	CSX PT MORRIS - (ABANDONED)	C	O		1	S	8/29/2014	4.660	F	1,740	\$7,699,500	201		

**INVENTORY SORTED BY FEATURE CARRIED**

BIN	BORO	FEATURE CARRIED	FEATURE CROSSED	RAIL L RO	BRIDGE TYPE	OTHER OWNER	SPA NS	RT NG SR	Inspection Date	Condition Rating	VR BL RT	DECK AREA	REPLACEMENT COST	CD	CD2	CD3
2241230	B	WESTCHESTER AVENUE	AMTRAK - CSX	AC	O		3	S	11/1/2014	5.778	G	15,600	\$69,030,000	202	209	
2241329	B	WHITE PLAINS ROAD	AMTRAK - CSX	AC	O		1	S	10/28/2014	4.781	F	6,900	\$30,532,500	211		
2248020	O	WHITELAW PEDESTRIAN BRIDGE	CONDUIT AVENUE		O-PED		7	C	10/17/2014	4.225	F	5,500	\$24,337,500	410		
1065210	O	WHITESTONE EXPRESSWAY NORTHBOUND	BCIP		A		1	S	6/17/2014	4.656	F	2,500	\$11,062,500	407		
2241369	B	WILLIAMSBRIDGE ROAD	AMTRAK - CSX	AC	O		2	S	10/29/2014	4.985	F	6,510	\$28,806,750	211		
2240039	KM	WILLIAMSBURG BRIDGE	EAST RIVER	T	WEO		53	S	10/20/2014	4.542	F	824,000	\$3,646,200,000	103	301	
2240059	BM	WILLIS AVENUE	HARLEM RIVER		WMO		15	S	11/12/2014	6.778	VG	171,105	\$757,139,625	111	201	
2248019	O	WOODHAVEN BOULEVARD	ATLANTIC AVENUE		O		3	S	3/26/2014	4.208	F	19,400	\$85,845,000	409		
2248159	O	WOODHAVEN BOULEVARD	QUEENS BOULEVARD		O		2	S	7/17/2014	4.078	F	11,500	\$50,887,500	404		
2230540	O	WOODSIDE AVENUE	278I (B.Q.E.)		A		1	S	1/31/2014	5.672	G	7,529	\$33,315,825	402		
2247120	O	WOODSIDE AVENUE	LIRR MAIN LINE	L	O		3	S	9/19/2014	4.413	F	14,900	\$65,932,500	402		
2247400	O	WOODSIDE AVENUE	CSX TRANSPORT	C	O		1	S	8/9/2013	5.033	G	8,200	\$36,285,000	402	404	
788 OPEN BRIDGES				OPEN SPANS 4,339				OPEN SF				14,590,227	63,294,492,000	ALL		

## STATEN ISLAND CULVERTS

BIN	BORO	FEATURE CARRIED	FEATURE CROSSED		BRIDGE TYPE	SPANS	SOURCE
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R00004	R	DICKIE AVE	NEAR COLUMBUS PLACE		O	1	CITY
R00005	R	BIDWELL AVE	COLUMBUS PLACE		O	1	CITY
R00010	R	GALLOWAY AVE	MARIANNE ST		O	1	CITY
R00011	R	FOREST AVE	CRYSTAL AVE		O	1	CITY
R00013	R	NAUGHTON AVE	PATTERSON AVE		O	3	CITY
R00015	R	OLYMPIA BLVD	SLATER AVE		O	1	CITY
R00016	R	GRAHAM BLVD	JAY ST		O	2	CITY
R00021	R	HUNTER AVE	IDLESE PLACE		O	1	CITY
R00022	R	IDLESE PLACE	HUNTER AVE		O	1	CITY
R00023	R	MIDLAND AVE	HYLAN BLVD		O	1	CITY
R00024	R	LINCOLN AVE	SANILAC ST		O	1	CITY
R00025	R	GREELEY AVE	SANILAC ST		O	1	CITY
R00027	R	ELEANOR ST	ROCKLAND AVE		O	1	CITY
R00031	R	TARLTON ST	GREAT KILLS LANE		O	1	CITY
R00032	R	SEGUINE AVE	PURDY PLACE		O	1	CITY
R00034	R	ROCKLAND AVE	BRIELLE AVE		O	1	CITY
R00035	R	BRADLEY AVE	WILLOWBROOK ROAD		O	1	CITY
R00036	R	AMBOY ROAD	ARBUTUS AVE		O	1	CITY
R00038	R	MAGUIRE AVE	DEPEW PLACE		O	1	CITY
R00040	R	113 MAGUIRE AVE	DEPEW PLACE		O	1	CITY
R00041	R	93 FOSTER ROAD	AMBOY ROAD		O	1	CITY
R00042	R	LEDYARD PLACE	LACONIA AVE		O	1	CITY
R00046	R	RICHMOND TERRACE	SNUG HARBOR		O	2	CITY
R00051	R	HARBOR ROAD	DUBLIN PLACE		O	1	CITY
R00055	R	TRAVIS AVE	VICTORY BLVD		O	1	CITY
R00059	R	WESTERN AVE	RR BRIDGE		WO	1	CITY
R00060	R	SIGNS ROAD	VICTORY BLVD		O	1	CITY
R00062	R	KISSEL AVE	SNUG HARBOR ROAD		O	1	CITY
R00065	R	HENDERSON AVE	WESTBURY AVE		O	1	CITY
R00068	R	FOREST AVE	RANDALL AVE		O	1	CITY
R00069	R	GREGG PLACE	RANDALL AVE		O	1	CITY
R00076	R	ROOSEVELT AVE	HAROLD ST		O	1	CITY
R00077	R	BUCHANAN AVE	HAROLD ST		O	1	CITY
R00084	R	ARTHUR KILL ROAD	MULDOON AVE		O	1	CITY
R00085	R	ARTHUR KILL ROAD	150' N.W. ELLIS ROAD		O	1	CITY
R00086	R	ARTHUR KILL ROAD	ENGLEWOOD ST		O	1	CITY
R00095	R	MEISNER AVE	ROCKLAND AVE		O	1	CITY
R00096	R	ROCKLAND AVE	MANOR ROAD		O	1	CITY
R00097	R	RICHMOND HILL ROAD	RICHMOND ROAD		O	1	CITY
R00101	R	ST ANDREWS ROAD	LIGHTHOUSE AVE		O	1	CITY
R00103	R	AULTMAN AVE	ST GEORGE ROAD		O	2	CITY
R00105	R	ARTHUR KILL ROAD	CLARKE AVENUE		O	1	CITY
R00106	R	ARTHUR KILL ROAD	RICHMONDTOWN ROAD		O	1	CITY
R00114	R	SWEET BROOK ROAD	RIDGEWOOD ROAD		O	1	CITY
R00115	R	VICTORY BLVD	CLOVES LAKE PARK		O	3	CITY
R00122	R	ARTHUR KILL ROAD	RIDGEWOOD AVE		O	1	CITY
R00133	R	ARDEN AVE	HALPIN AVE		O	1	CITY
R00135	R	HYLAN BLVD	CORNELIA AVE		O	1	CITY
R00136	R	SNUG HARBOR ROAD	KISSEL AVE		O	1	CITY
R00137	R	RICHMOND TERRACE	WESTERN AVE		O	2	CITY
R00138	R	HOLLAND AVE	BENJAMIN PLACE		O	1	CITY
R00139	R	DE PEW PL	MAGUIRE AVE		O	1	CITY
R00141	R	ALTER AVE	STORM&GRND FED STREAM		O	1	CITY



R00013 Naughton Avenue over Patterson Avenue. R00032 Seguine Avenue over Purdy Place. R00115 Victory Boulevard over Cloves Lake Park. R00114 Sweet Brook Road over Ridgewood Road. R00103 Aultman Avenue over St. George Road. R00139 De Pew Place over Maguire Avenue.

A glossary of the terms most commonly used in bridge design, construction and maintenance is presented below. Cross-references are indicated through the use of BLOCK LETTERING.

**AASHTO (AMERICAN ASSOCIATION OF STATE HIGHWAY TRANSPORTATION OFFICIALS)** - A nonprofit, nonpartisan association representing highway and transportation departments in the fifty states, the District of Columbia, and Puerto Rico, representing all five transportation modes air — highways, public transportation, rail, and water.

**ABUTMENT** - Walls of reinforced concrete or masonry. Abutments support a bridge's SUPERSTRUCTURE and APPROACHES, as well as retain the embankments that are positioned at the extreme ends of a multi-span bridge.



Riverside Drive Viaduct Abutment End. Battery Place Underpass Abutments. City Island Bridge Beginning and Ending Abutment.  
(Credit: NYSDOT)

**ADA (AMERICANS WITH DISABILITIES ACT)** - The Americans with Disabilities Act gives civil rights protections to individuals with disabilities, similar to those rights provided to individuals on the basis of race, color, sex, national origin, age, and religion. It guarantees equal opportunity for individuals with disabilities in public accommodations, employment, transportation, state and local government services, and telecommunications.

**ADMIXTURE** - Material, other than water, AGGREGATE, and hydraulic cement, used as an ingredient of concrete, mortar, grout, or plaster and added to the batch immediately before or during mixing.

**AERIAL LIFT** - Any vehicle-mounted device used to elevate personnel, including: extendable boom platforms, aerial ladders, articulating (jointed) boom platforms, vertical towers, or any combination of these. Aerial lifts have replaced ladders and scaffolding on many job sites due to their mobility and flexibility. They may be made of metal, fiberglass-reinforced plastic, or other materials. They may be powered or manually operated, and are considered to be aerial lifts whether or not they can rotate around a primarily vertical axis.



Inspecting the Belt Parkway Bridge over 26<sup>th</sup> Avenue in December 2012. (Credit: Artemio Angeles) Inspecting the Nereid Avenue Bridge over Bronx River Parkway in June 2012, Using a 60 Foot Boom With Outriggers. (Credit: Bojidar Yanev) Inspecting the Brooklyn-Queens Expressway (Eastbound) over Cadman Plaza/Brooklyn-Queens Expressway (Westbound).

**AGGREGATE** - Inert material such as sand or stone that is mixed with cement, lime and water to produce grout or mortar.

**ALIGNMENT** - The relative horizontal and vertical positioning between the bridge and APPROACHES.

**ALLISION** - The violent impact of a movable object (vessel) striking a stationary object (bridge or/and bridge protective system).

**ANCHORAGE** - A solid mass, usually comprised of concrete, that encases a grillage of heavy steel bars into which the ends of a SUSPENSION BRIDGE'S main CABLES are anchored. Anchorages are designed to resist the pull of the cables.





Inspecting the Exterior of the Manhattan Bridge Anchorage. (Credit: NYSDOT)

**APPROACH** - Roadway at each end of a bridge, beyond the ABUTMENT, providing access to the bridge.



End Approach to Bridge Over Dam at Clove Lake. Metropolitan Avenue Bridge Approach. (Metropolitan Credit: NYSDOT) Belt Parkway Bridge over 26<sup>th</sup> Avenue Approach. (Credit: Artemio Angeles)

**ARTERIAL BRIDGE** - Any bridge upon which an arterial highway runs as it crosses streets, water, railroads, etc.

**AS-BUILT DRAWINGS** - Drawings that are prepared from measurements taken on-site to accurately depict the actual sizes and location of elements of the construction project. The as-built drawings indicate variations from the construction documents that occurred during construction.

**ASPHALT** - Black bituminous surface material made from AGGREGATE and processed petroleum.



Hamilton Avenue Asphalt Plant Silo. (Credit: Sheena Diaz)

**BACKFILL** - Material used to refill an excavated area.

**BASCULE BRIDGES** - Bascule bridges are movable bridges, typically referred to as "draw bridges" which rotate the superstructure vertically. The movable leaf of the structure - known as a *bascule* - is counterbalanced by weights of such size that minimal power is required for operation - just enough to overcome inertia, frictional resistance, wind and snow loads. Such bridges are relatively speedy to operate and provide unlimited vertical clearance. Examples of bascule bridges currently under the jurisdiction of the New York City Department of Transportation include the *Unionport*, *Shore Road (Pelham)*, *Hamilton Avenue*, Third Street, *Union Street*, Metropolitan Avenue, Hunters Point Avenue, and *Greenpoint Avenue* Bridges.



Unionport and Hamilton Avenue Bridge. (Credit: NYSDOT) Union Street Bridge. Greenpoint Avenue Bridge. (Greenpoint Credit: Michele N. Vulcan) Shore Road Bridge in July 2011. (Credit: Sergey Parayev)

**BASE COURSE** - The layer of compacted ASPHALT directly under the WEARING SURFACE.

**BEAM** - A linear structural member designed to span from one support to another.

**BEARINGS** - Designed to transmit the load from the SUPERSTRUCTURE to the SUBSTRUCTURE. Divided into two types, expansion and fixed, bearings are needed to ensure that certain elements are not forced to take more load than that for which they were designed and that the bridge can move slightly under load and temperature changes as needed. Bearings that do not allow for horizontal movement of the superstructure are referred to as fixed bearings. Bearings that allow for horizontal movement of the superstructure are known as expansion bearings. Both fixed and expansion bearings permit rotation.



Truss Bearing on Manhattan Bridge.  
(Credit: NYSDOT)

**BICYCLE LANE** - A portion of the roadway that has been designated by striping, signing, and pavement markings for the preferential or exclusive use of bicycles. (New York State Vehicle and Traffic Law, Title 1, Article 1, §102-a)

**BICYCLE PATH** - A path physically separated from motorized vehicle traffic by an open space or barrier and either within the highway right-of-way or within an independent right-of-way and which is intended for the use of bicycles. (New York State Vehicle and Traffic Law, Title 1, Article 1, § 102-b)



Fresh Creek Bicycle/Pedestrian Path in 2013. Brooklyn Bridge and Williamsburg Bridge Bicycle/Pedestrian Paths in 2010. (Williamsburg Credit: Russell Holcomb) Manhattan Bridge Bicycle Path in 2013.

**BID** - A contractor's formal proposal, including prices, to perform the work set out in the project SPECIFICATIONS.

**BMP (BEST MANAGEMENT PRACTICES)** - Schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the discharge of pollutants to waters of the United States. BMPs also include treatment requirements, operating procedures, and practices to control plant site runoff, spillage, or leaks, sludge or waste disposal, or drainage from raw material storage.

**BORING** - A soil exploration technique of drilling into the ground at various locations in an attempt to construct an accurate subsurface profile.



Conducting Soil Borings in 2008 as Part of the Seismic Retrofit Design of the Manhattan Bridge. Drilling to a Depth of Approximately 210 Feet to Obtain an 8-foot Long Hard Rock Sample. A 2 1/2 - Foot Long Hard Rock Sample Taken From a Depth of Between 202 and 204 1/2 Feet.

**BOX BEAM** - A hollow structural beam with a square, rectangular, or trapezoidal cross-section.

**BRIDGE** - A structure connecting two points, greater than 20 feet in distance, which carries vehicular and/or pedestrian traffic over water, a descending slope, or another road.

**BULKHEAD** - A RETAINING WALL-like structure commonly composed of driven piles supporting a wall or a barrier of wooden timbers or reinforced concrete members.

**CABLE** - A steel rope, composed of parallel or twisted wires, used to support the road deck of **SUSPENSION BRIDGES** or **CABLE STAYED BRIDGES**.



Inspector on Manhattan Bridge Cable. Cable B.  
(Credit: NYSDOT)

**CABLE STAYED BRIDGES** - Bridges in which the superstructure is directly supported by cables, or stays, passing over or attached to towers located at the main piers.



East 64<sup>th</sup> Street Pedestrian Bridge over FDR Drive.

**CAISSON** - A rectangular or cylindrical chamber for keeping water or soft ground from flowing into an excavation.

**CAMELBACK TRUSS** - A TRUSS having a curved top chord and straight bottom chord meeting at each end. There is a camelback truss on the Macombs Dam Bridge.



Macombs Dam Camelback Truss.

**CANTILEVER BRIDGES** - A cantilever is a BEAM that is supported only on one end. In a cantilever bridge, the tree branch-like beams project toward each other, forming a span of the bridge when connected in the center. Bridges of this type are economical to build because they require less material in construction and less condemnation of property is necessary for the narrow piers which are sufficient for support. Typically, no FALSEWORK is required during construction and the bridge does not exceed 1,800 feet in length. NYCDOT's *Ed Koch Queensboro Bridge* is a notable example of this type of structure.



Ed Koch Queensboro Bridge  
(Credit: Russell Holcomb)

**CAST-IN-PLACE** - Concrete that is poured and cured in its final position at the project site.

**CATCH BASIN** - A receptacle, commonly box shaped and fitted with a grilled inlet and a pipe outlet drain, designed to collect the rain water and floating debris from the roadway surface and retain the solid material so that it may be periodically removed.

**CATWALK** - A narrow walkway for access to some part of a structure, typically running parallel to the girders under the superstructure.



Ed Koch Queensboro Bridge Lower Level Flooring System Catwalk under Lower Level Queens Approach. Manhattan Bridge Brooklyn Tower Catwalk. (Credit: NYSDOT) Fresh Creek Catwalk Under Deck.

**CHANGE ORDER** - An approved modification of the SPECIFICATIONS or the costs in a construction contract.

**CHIPPING HAMMER** - A welder's compressed-air tool for cleaning steel after welding. It is also used by bridge inspectors.

**CLADDING** - Non-load-bearing stone or brick veneer used as the facing material in exterior bridge wall construction.



Abutment Wingwall Cladding on the West 173<sup>rd</sup> Street Bridge. Hutchinson River Parkway Bridge. Brooklyn-Queens Expressway Over Ramp to Brooklyn-Queens Expressway (Eastbound). Right Side Fascia on the Bronx Pelham Parkway Bridge.

**CLEARANCE** - The unobstructed vertical and horizontal space provided between two objects.



United Nations – 1<sup>st</sup> Avenue Tunnel Vertical Clearance Posting. Grand Street Vertical Clearance Posting. (Credit: NYSDOT) Retro-reflective Material Improves Visibility of These Low Vertical Clearance Bridges: East 60<sup>th</sup> Street Bridge Over FDR Drive and Westchester Avenue Bridge over Hutchinson River Parkway.

**COFFERDAM** - A temporary dam-like structure constructed around an excavation to exclude water.



April 2010: Cofferdam With Filter Fabric and Gravel Placed Prior to Pile Driving During the Emergency Repair Project on the Borden Avenue Bridge over Dutch Kills. February 2011: Fresh Creek Cofferdam Pad.

**COLONNADE** - A series of regularly spaced columns.



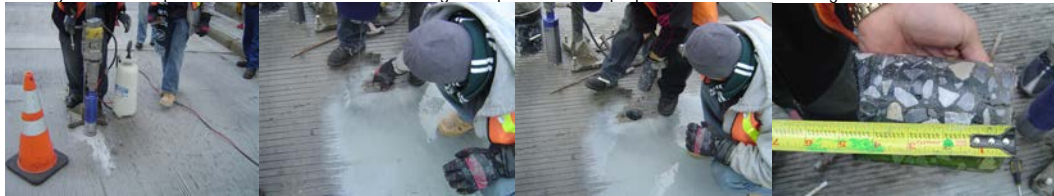
Manhattan Bridge Colonnade. (Credit: Peter Basich) Arch and Part of the Colonnades in March 2011. (Credit: Bojidar Yanev)

**COMPRESSION** - The stress resulting from a pushing force on a structure.

**CONDITION RATING** - A judgment of a structure's condition in comparison to its original as-built condition.

**COPING** - The material forming the top layer of a masonry unit which protects the MASONRY below from penetrating water.

**CORE** - A cylindrical sample of concrete removed from a bridge component for the purpose of destructive testing.



Removing a Core From 252<sup>nd</sup> Street Bridge over Henry Hudson Parkway in January 2009. (Credit: Masroor Mahmood)

**CORROSION** - The general disintegration of surface metal through oxidation.

**COUPON** - A sample of steel taken from an element in order to test material properties.

**COUNTERWEIGHT** - A weight which is used to balance the weight of a movable member; in bridge applications counterweights are used to balance a movable span so that it rotates or lifts with minimum resistance.

**CRITICAL PATH** - The set of activities that must be completed on time for the contract completion date to be met. Activities on the critical path have no slack time.

**CULVERT** - Any structure under the roadway with a clear opening of twenty feet or less, measured along the center of the roadway. A culvert is primarily a hydraulic structure, and its main purpose is to allow free flow of water under roadways.



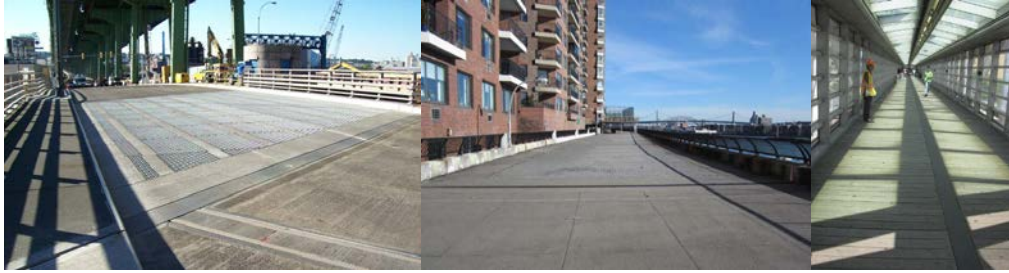
Idlesee Place Culvert. Sweet Brook Road Culvert. Richmond Terrace over Snug Harbor Culvert.

**CURING** - Process of maintaining freshly placed concrete mortar, grout, or plaster moist and at a favorable temperature for a suitable period of time during its early stages so that the desired properties of the material can develop. Curing assures satisfactory hydration and hardening of the cementitious materials.

**DAMAGE INSPECTION** - An unscheduled inspection to assess structural damage resulting from environmental factors or human actions.

**DEAD LOAD** - The weight of the bridge itself without any traffic or external loads.

**DECK** - The supporting slab and wearing surface of a bridge. Since the deck is directly affected by traffic loads, it's most susceptible to traffic-related problems such as: traffic abrasion, corrosion effects of deicing chemicals, live load deflections and cracking, and impact loads that materially increase as the deck surface deteriorates.



Hamilton Avenue Bridge, East 81<sup>st</sup> to East 90<sup>th</sup> Street Promenade over FDR Drive, and Chambers Street Pedestrian Bridge Decks.  
(Hamilton and FDR Drive Credit: NYSDOT)

**DELAMINATION** - The subsurface separation of concrete or steel into layers. Delaminated areas give off a hollow “clacking” sound when tapped with a hammer or chain drag. Hammer-sounding of large areas generally proves to be extremely time consuming. More productive sounding methods are available when working with horizontal flat surfaces. Chain dragging accomplishes the same result as hammer-sounding. As the chain is dragged across a concrete surface, a distinctly different sound is heard when it crosses over a delaminated area. When a delaminated area completely separates from the member, the resulting depression is called a SPALL.



Hollow Sounding And Delaminated Concrete Areas With Exposed Rebars on the Sunrise Highway Bridge Westbound over Laurelton Parkway in 2014.

**DESIGN-BUILD CONTRACTS** - A delivery procedure where one company is retained to perform both design and construction, thus expediting the capital bridge rehabilitation program.

**DIAPHRAGMS** - Structural members used to tie adjoining girders together to improve the lateral stability of the girder and to distribute forces among adjacent longitudinal elements.

**DOLPHIN** - A group of PILES driven close together and placed to protect portions of a bridge or other structure exposed to possible damage by collision with marine traffic.



2014: Union Street Bridge Dolphins. Greenpoint Avenue Dolphin & Fender System. (Greenpoint Credit: Peter Basich) Hunters Point Avenue Dolphins. (Credit: Michele N. Vulcan)

**DRAINAGE SYSTEM** - A collection of surface and/or subsurface drains and pumps that are used to remove surface or ground water.

**DRILLED SHAFT** - A cylindrical structural column transmitting loads to soil and/or rock. The drilled shaft is constructed in a hole with a circular cross section. The hole is filled with concrete and may be reinforced with a steel REBAR CAGE.

**EFFLORESCENCE** - White salts that water movement brings to the surface of porous construction materials.



Moderate Efflorescence on the Brooklyn Bridge Brooklyn Tower North Gothic Arch in 2004. (Credit: NYSDOT) Efflorescence on the Underside of the Masonry Stones on the End Abutment of the Margaret Corbin Drive Bridge over Pedestrian Path Near Café. Heavy Efflorescence on End Abutment Stem Wall of Bridge Over Dam at Clove Lake.

**ELECTRICAL MAINTENANCE** - Preventive maintenance to electrical systems on the East River bridges (e.g., travelers, lighting systems) and the movable bridges (e.g., contacts, relays, switches, controls, limit switches, and lighting systems).

**ELEVATION VIEW** - A photograph or drawing of the side view of a structure.



Elevation View of Roosevelt Island Bridge.  
(Credit: NYSDOT)

**(EIS) ENVIRONMENTAL IMPACT STATEMENT** - A comprehensive study of potential social, economic and environmental impacts related to a federally-assisted project. Projects for which an EIS is required are defined in the National Environmental Policy Act of 1969, as amended.

**EXPANSION JOINTS** - Located between bridge spans, expansion joints are located in the deck, directly above the BEARINGS. Expansion joints allow parts of the structure to expand independently and therefore relieve stresses that may otherwise cause damage.



Constructing an Expansion Joint on the Riverside Drive Viaduct in 1918.

**EXTREME EVENT** - A rare occurrence, such as an earthquake, flood, hurricane or collision, presenting higher than usual demands to infrastructure networks.

**EYEBARS** - Steel bars with each end shaped like the eyes of giant needles. They provide total anchorage of the suspension cable and are buried deep within the ANCHORAGE structure.

**FACE** - The outer, exposed surface of a MASONRY unit.

**FALSEWORK** - Any temporary structure that facilitates the construction, modification, or removal of a bridge. Types of falsework include: work platforms, temporary bents, erection towers, and COFFERDAMS.

**FATIGUE** - Cause of structural deficiencies (such as metal fracture) due to repetitive (or cyclic) loading over time.

**FENDER** - A structure that acts as a buffer to protect the portions of a bridge exposed to floating debris and water-borne traffic from collision damage.



Metropolitan Avenue Bridge Fender. Rikers Island Dolphin & Fender System. (Credit: NYSDOT) Installing the Fresh Creek Bridge Fender System in 2013.

**FINGER DAM** - EXPANSION JOINT in which the opening is spanned by meshing steel fingers or teeth. Finger plate joints are made up of two loosely interlocking pieces of steel plates that cantilever out into the deck joint opening. The cantilevered portion of each plate is made up of rows of finger shaped protrusions that fit into the row of grooves in the opposing plate. The finger plates are anchored into the deck slab or directly attached to the underlying superstructure steel. Whenever the bridge spans undergo a movement, the finger plates move back and forth into the opposing grooves and accommodate this movement.



Manhattan Bridge Finger Dam.  
(Credit: Jagtar Khinda)

**FIRE HAZARD** - Accumulation of debris, where the debris is of sufficient quantity, in a location where, if it caught fire, it would compromise the structural integrity of the bridge.

**FIXED PRICE CONTRACT** - A contract with an overall predetermined price for the project work.

**FLAG CONDITIONS** - A "Flag" is a hazardous or potentially hazardous condition on a bridge. A "Flag" is classified as either Red, Yellow, or Safety. A "Red Flag" requires prompt evaluation and, possibly, corrective action. A "Yellow Flag" is used to report a potentially hazardous structural condition, which if left unresolved will most likely become a danger to the soundness of the bridge and a hazard to the public. In the case of a "Safety Flag," there is no danger of partial or complete structural failure of the bridge; however, if left unattended, those conditions can present a vehicular or pedestrian hazard.

**FLOORBEAMS** - Horizontal members placed crosswise to the bridge's major BEAMS, girders, or TRUSSES to support the deck.



South Transit Floorbeams, Stringers, and Bracing Members on the Manhattan Bridge. Ed Koch Queensboro Bridge North Outer Roadway Floorbeam. (Credit: NYSDOT)

**FOOTINGS** - Part of the substructure known as the bridge foundation, they are masses of reinforced concrete which can be found beneath the ABUTMENTS and PIER and which spread the load to allow the soil to support the structure above.

**FORMS** - The temporary molds that hold concrete in place while it is hardening; also known as form work.





West 252<sup>nd</sup> Street Bridge Formwork at the Pier and West Abutment in 2007. Formwork for the Westbound Roadway of the Rockaway Parkway Bridge in 2010. (Rockaway Bridge Credit: Eric Callender) Gerittsen Inlet Bridge in March 2014: Putting up Insulated Forms in Preparation for the Placement of Concrete at the West Abutment Wingwall. The Insulation Helps Protect the Concrete From the Elements and Fluctuating Temperatures During the Curing Period.

**FULL STEEL PAINTING** - A bridge painting technique that involves cleaning of steel surfaces using approved environmentally safe paint removal techniques (blasting, power tools, or hand tools). A full primer, intermediate and finish coat are applied using combinations of brush, roller, or (if necessary) spray painting.

**FUNCTIONALLY OBSOLETE** - A status used to describe a bridge that, because of its geometry, is no longer functionally adequate for its task. Reasons for this status include that the bridge doesn't have enough lanes to accommodate the traffic flow, it may be a drawbridge on a congested highway, or it may not have space for emergency shoulders. "Functionally Obsolete" does not communicate anything of a structural nature. A functionally obsolete bridge may be perfectly safe and structurally sound, but may be the source of traffic jams or may not have a high enough CLEARANCE to allow an oversized vehicle.

**GENERAL CONTRACTOR** - has overall responsibility for a construction project. The general contractor may break down the project into smaller pieces to be handled by subcontractors.

**GEOMETRIC IMPROVEMENT** - Roadway improvements other than a surface treatment, such as shoulder and lane widening, curb and gutter, or roadway alignment.

**GIRDER SPAN BRIDGES** - are primarily employed in bridging short distances, and may be classified as either simple or continuous. The steel girders carry the roadway and roadway load to end supports. The Midtown Highway, *Hook Creek*, Little Neck and *Brooklyn Third Avenue Bridges* are of this type.



Hook Creek Bridge and Brooklyn's Third Avenue Bridge. (Credit: NYSDOT)

**GRADE** - The degree of inclination of the ground surface.

**GRID FLOORING** - A steel floor system comprising a lattice pattern which may or may not be filled with concrete.



Installation of Full Width Grid Deck Panels on the Manhattan Bridge Lower Roadway in 2006. Pouring the Concrete. Grand Street Deck. (Grand Street Credit: NYSDOT)

**GRIZZLY** - A coarse screen used to remove oversize pieces from ASPHALT or earth.



New Grizzly Under Fabrication for the Agency Hamilton Asphalt Plant. (Credit: Russell Holcomb)

**GUSSET PLATE** - A metal plate connecting truss members.



Grand Street Bridge Span 1 Truss Diagonal Member Gusset Plate.

**GUTTER** - A paved drain commonly constructed in conjunction with the curbs of the roadway.

**(I/D) INCENTIVE/DISINCENTIVE** - Predetermined adjustment to the total contract amount for each day or portion thereof that the work is completed ahead of or behind a specific milestone, phase or contract completion date.

**JACKING** - The mechanical lifting or sliding of an element.



Ed Koch Queensboro Bridge Bent Column Ready for Jacking in 2005.

**JERSEY BARRIER** - A low, gradually narrowing, reinforced concrete wall used as a highway divider and as a means of preventing a vehicle from crossing a median or leaving the roadway. These barriers were first used on the New Jersey Turnpike.

**LEAF** - The movable portion of a BASCULE bridge that forms the SPAN of the structure.



Leaves of the Hamilton Avenue Bridge.

**LIVE LOAD** - The weight of the traffic crossing a bridge and of other external loads applied to the structure (excluding the weight of the bridge itself.)

**LOAD RATING** - A value that indicates the LIVE LOAD capacity of a bridge. This is determined by analytic and experimental procedures specified by ASSHTO, using design documents and information gathered from field inspection and testing.

**LUBRICATION MAINTENANCE** - Lubrication of mechanical parts of the East River bridges (e.g., travelers, cables, solid rod SUSPENDERS, and EYEBARS), and the movable bridges (e.g., bearings, brakes, limit switches, and gates).

**MAINTENANCE AND PROTECTION OF TRAFFIC** - The control plan for traffic around and through a construction site.

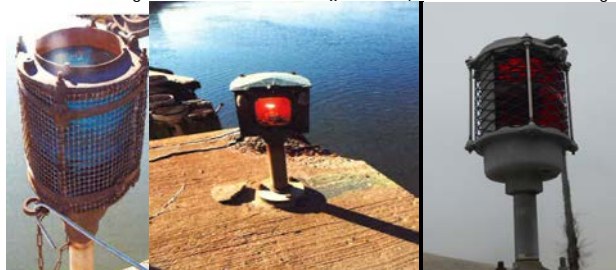
**MAP CRACKING (CRAZE CRACKING)** - Large pattern cracking can be caused by alkali-silica reaction within the concrete. Environmental conditions such as low humidity, high outside temperatures, direct sunlight, and wind can create high rates of evaporation from the surface layer of concrete. Resistance to shrinkage from the underlying concrete causes stress that is relieved by map cracking.



Union Street Bridge over Brooklyn-Queens Expressway in 2012 – Extensive Map Cracking With Efflorescence on the Underside of the Deck.  
(Credit: NYSDOT)

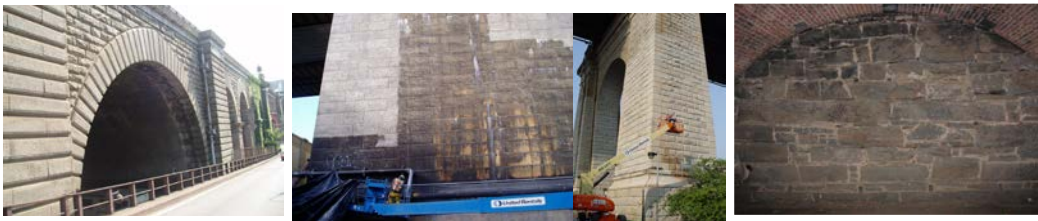
**MARINE BORERS** - Mollusks and crustaceans which live in water and destroy wood by digesting it.

**MARINE NAVIGATIONAL LIGHTING** - The lights maintained on a bridge for the protection of marine navigation.



Northern Boulevard Bridge - Bridge and Pier Marine Navigational Lighting.  
Grand Street – Left Side Channel Light.

**MASONRY** - Construction materials made of concrete, brick, tile, or stone.



Brooklyn Bridge Cliff Street Arch Masonry. Cleaning the Masonry of the North Face of the Manhattan Bridge's Brooklyn Anchorage and of the North and East Faces of the Roosevelt Island Pier of the Ed Koch Queensboro Bridge. Masonry of the East Drive Bridge Over Eastwood Arch.

**MORTAR** - Mixture of cementitious materials, fine AGGREGATE, and water, which may contain ADMIXTURES, and is usually used to bond MASONRY units.

**MOVABLE BRIDGE** - A type of bridge which carries vehicular or pedestrian traffic over a navigable waterway, and which opens to permit the passage of a ship, barge or boat. The 24 movable bridges currently under the jurisdiction of the New York City Department of Transportation include the Harlem River group (Broadway, West 207<sup>th</sup>/West Fordham Road, Macombs Dam, 145<sup>th</sup> Street, Madison Avenue, Third Avenue, Willis Avenue, and *Wards Island*); the Bronx group (Hutchinson River Parkway, *Shore Road*, and Bruckner Expressway/Westchester Creek); the Queens group

(Borden Avenue, Grand Street, Greenpoint Avenue, Hunterspoint Avenue, *Pulaski Avenue*, and *Roosevelt Island*); and the Brooklyn group (Hamilton Avenue, Ninth Street, Third Street, *Carroll Street*, Union Street, Metropolitan Avenue, and Mill Basin.)



Roosevelt Island Bridge in 2013. (Credit: Stephen Mallon). Shore Road Bridge in 2009. (Shore Road Credit: George Kern) Wards Island Pedestrian Bridge in 2009. (Credit: Duane Bailey-Castro) Pulaski Bridge in 2010. (Credit: Sergey Parayev) Carroll Street Bridge in 2012. (Credit: NYSDOT)

**MOVING LOAD** - A LIVE LOAD that is moving, for example, vehicular traffic.

**NECKLACE LIGHTS** - The necklace lights are those lights on the main cables of suspension bridges which, when illuminated at night, resemble a necklace.



Repairing a Manhattan Bridge Necklace Light. Bridge Repairer and Riveter Neil Dalton Installing a New Light on the Williamsburg Bridge in 2012. (Credit: Hany Soliman) Manhattan Bridge Side Necklace Light. (Credit: NYSDOT)

**NONDESTRUCTIVE TESTING** - A method of checking the structural quality of materials that does not damage them.

**NOTICE TO PROCEED** - The formal document authorizing the contractor to commence work under its contract.

**OPERATOR'S HOUSE** - The building containing the power plant and operating machinery and devices required for the operator's (bridge tender's) work in executing the complete cycle of opening and closing a MOVABLE BRIDGE span.

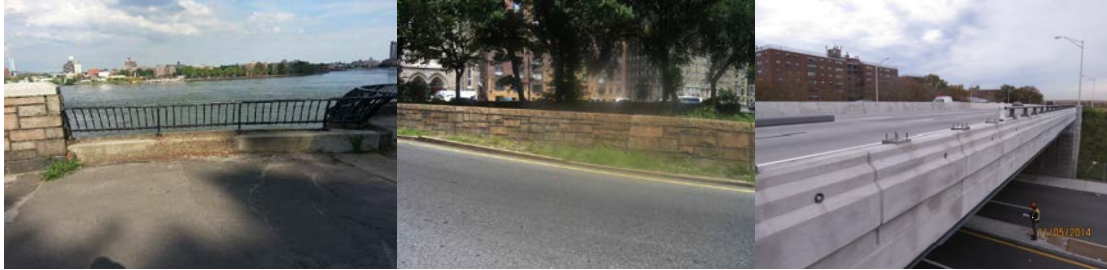


Metropolitan Avenue Bridge over English Kills and Grand Street Bridge Operator Houses.

**ORTHOTROPIC DECK** - A lightweight decking system that uses closely spaced open or closed steel ribs and a horizontal steel deck plate.

**PANEL POINT** - The point at which two members of a TRUSS cross.

**PARAPET** - A low wall along the outmost edge of the roadway of a bridge to protect vehicles and pedestrians.



East 81<sup>st</sup> to East 90<sup>th</sup> Street Promenade over FDR Drive – Right Parapet at Span 45. West 65<sup>th</sup> Street Entrance Eastbound over Bridle Path West End – View From End of Left Side Parapet. Belt Parkway Bridge over Rockaway Parkway – Right Side Parapet. (Promenade and Rockaway Parkway Credit: NYSDOT)

**PEDESTRIAN BRIDGES** - Bridges designed and constructed to provide means of crossing for pedestrian traffic only.



West 181<sup>st</sup> Street, PS-5, Carroll Street over Franklin Shuttle, and Chambers Street Pedestrian Bridges.

**PIER** - Part of a bridge's substructure, piers are the intermediate supports or columns which support a multi-span bridge. Piers may be composed of steel or reinforced concrete, and can appear as columns or solid walls.



Pier 1 (Looking Southeast) of Minthorne Street Pedestrian Bridge. Pier 17 of Rikers Island Bridge. Pier 2 of Broadway Bridge. Pier 35 of Macombs Dam Bridge. (Credit: NYSDOT)

**PILES** - A concrete, steel or timber column located beneath the FOOTINGS of a bridge and embedded in the soil. Piles are employed in bridges only if the soil directly below the footing is not firm enough to support the bridge loads. Piles are also used to found a structure below the depth of potential scour.

**PLAZA** - An area designated for use by pedestrians, which may vary in size and shape; which may abut a sidewalk and is located fully within the bed of a roadway; may be at the same level as the roadway or raised above the level of the roadway; may be physically separated from the roadway by curbing, bollards, or other separators; may be treated with special markings and materials; and may contain benches, tables, or other facilities for pedestrian use.



Manhattan Bridge Brooklyn Plaza. Evening View of the Plaza Looking Southeast With Benches, Lights, and Granite Pavers in Foreground. Aerial View of the Plaza. Looking South From the Pedestrian Entrance. Delancey Street Plaza Near the Williamsburg Bridge.

**PLUMB BOB** - A weight hanging on a string (plumb line), used by bridge inspectors to show the direction of the vertical distance.

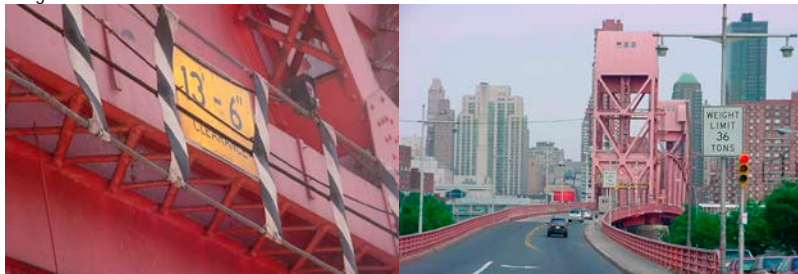
**POINTING** - The compacting of the mortar in the outermost portion of a joint and the troweling of its exposed surface to secure water tightness or desired architectural effect.



Pointing Joints on the East Face of the Brooklyn Anchorage of the Manhattan Bridge.  
Pointing the Masonry on the East Drive Bridge (East Wood Arch).

**PORTLAND CEMENT CONCRETE** - The most common concrete used in construction. It was patented in England in 1820, and is so named because when hard, it resembles Portland stones from Dorset. Portland cement is made with the following raw materials: limestone - provides lime, quartz or cement rock - provides silica, claystone - provides aluminum oxide, and iron ore - provides iron oxide.

**POSTED** - An announcement or sign limiting dimension, speed, or loading, indicating that larger dimensions and higher speeds and loads cannot be safely taken by the bridge.



Roosevelt Island Bridge Vertical Clearance Restriction and Posted Weight Signs. (Credit: NYSDOT)

**POTHOLE** - A hole in a roadway or pavement, usually caused by heavy vehicular traffic or weathering.

**PRECAST CONCRETE** - Concrete members that are cast and cured before being placed into their final positions on the construction site.

**PREVENTIVE MAINTENANCE** - Preventive maintenance involves cleaning, protecting, and performing minor repairs of bridge components to prevent deterioration from becoming so extensive that major REHABILITATION or RECONSTRUCTION is needed. Specified interval maintenance, such as cleaning DRAINAGE SYSTEMS and lubrication, are done on a scheduled basis. Other maintenance is carried out when inspectors point out the need for it, such as resealing an EXPANSION JOINT or replacing the wearing surface. Preventive maintenance tasks on the bridges include: the cleaning of drainage systems, gratings, and expansion joints; the washing of the deck area and salt splash zones; full-steel, salt splash, and spot painting; the patching of sidewalks; the maintenance of electrical devices; and the oiling of mechanical components.



Power Washing the Corrosive Deicing Solvents Within the Range of the Roadway Splash Zone on The Manhattan Bridge in October 2007. Particular Attention is Directed to Cleaning the Gusset Plate. (Credit: Albert Hong) Performing Wear and Tear Resurfacing Work on the Roosevelt Avenue Bridges in April 2010: Assistant City Highway Repairer Victor Magagna, Supervisor Highway Repairer Joseph Palemine, Assistant City Highway Repairer Jonathan Adorno (Obscured), Assistant City Highway Repairer Anthony Montalbano, and Area Supervisor Highway Maintenance Edward Pedersen. Assistant City Highway Repairers Jonathan Adorno and Victor Magagna. (Credit: Joseph Flood)

**PRIMER** - The first layer of paint used to cover the unsealed surface. This is followed by at least one more coat of paint.

**PUNCH LIST** - A catalogue of minor items still outstanding at the end of a construction project.

**QUALITY ASSURANCE** - An independent evaluation of a service (i.e., an inspection) to establish that a pre-described level of quality has been met.

**RAILING** - A fence-like construction built at the outermost edge of the roadway or the sidewalk portion of a bridge to protect pedestrians and vehicles.



University Heights Bridge Railing. (Credit: NYSDOT) Manhattan Bridge Railing. (Credit: Russell Holcomb) Greywacke Arch Railing. 37<sup>th</sup> Street Bridge over Brooklyn-Queens Expressway Railing.

**RAILROAD FORCE ACCOUNTS** - Railroad force accounts are contracts between the Agency and railroads by which the railroads supply flag personnel so the Division can perform repair work on bridges that cross over railroad tracks.

**REBAR CAGES** - Rebar cages are placed in large cast-in-place concrete columns (DRILLED SHAFTS), and are fabricated from steel reinforcing bars. The reinforcement will typically include concentric hoops (or spirals) along the length of the cage, which are tied to longitudinal bars perpendicular to the hoops.



City Island and Gerittsen Inlet Bridge Rebar Cages.

**REHABILITATION** - Extending the useful life of a bridge by painting, repairing or replacing the DECK or selected elements of the SUBSTRUCTURE or SUPERSTRUCTURE. This type of work is performed primarily on those structures not classified as deficient, but which contain specific components that have low condition ratings.

**REPLACEMENT** - That type of work where an existing bridge is removed and is fully replaced at the same site, or at an adjacent location, by a substitute bridge, as part of the same project.

**RETAINING WALL** - A structure designed to restrain and hold back a mass of earth.



Kappock Street Retaining Wall in Riverdale, Before and After Repairs. The Existing 300-Foot Long Parallel Concrete Roadway Retaining Walls on Both Sides of Kappock Street Were Deteriorated and Leaning, and Were Replaced with New Modular Retaining Walls in the Summer of 2009. Inspecting a Bulge in a Retaining Wall Along Douglas Road in Staten Island in 2014.

**RETARDING AGENT** - A chemical added to mortar to slow down the set.

**RETRACTILE BRIDGES** - Retractable bridges are movable bridges that are mounted on tracks that are positioned to one side of a navigational channel. To open, the bridge is withdrawn or "retracted" to shore. Although fascinating to observe and efficient to operate, retractile bridges are considered obsolete because of the expansive land areas that must be condemned in order to accommodate their tracks. The New York City Department of Transportation currently possesses two retractile bridges - the *Borden Avenue* and *Carroll Street* bridges, rare examples of the bridge builders' art.



Borden Avenue Bridge. (1<sup>st</sup> and 2<sup>nd</sup> Credit: Peter Basich, 3<sup>rd</sup>: Vadim Sokolovsky Carroll Street Bridge. (1<sup>st</sup> Credit: NYSDOT, 2<sup>nd</sup>: Russell Holcomb)

**RETROFIT** - Upgrading parts of an existing structure to meet current standards.

**RIGHT-OF-WAY** - A general term denoting land, property, or interest therein, usually in a strip, acquired for or devoted to transportation purposes.

**RIPRAP** - Irregularly broken, random-sized pieces of rock used for a foundation or to prevent soil erosion.



Eroded Riprap Pier Protection at Pier 11 of Old Willis Avenue Bridge in 2008. (Credit: NYSDOT) Riprap Installed in 2013 on South Side of Belt Parkway Bridge over Fresh Creek, Facing East.

**ROADWAY** - The portion of the road intended for the use of vehicular traffic.



University Heights Roadway and Sidewalk in 1922.

**ROCKER BEARING** - A bridge support that accommodates expansion and contraction of the superstructure through a rocking action.

**ROUTINE INSPECTION** - Regularly scheduled inspection or condition assessment that consists of observations and/or measurements needed to determine the physical and functional condition of the bridge, to identify any changes from initial or previously recorded conditions, and to ensure that the structure continues to satisfy present service requirements.



**SADDLE** - A special curved casting atop a SUSPENSION BRIDGE tower into which the cables are placed to avoid sharp bends in directional changes of the cable.



Manhattan Bridge Saddle.  
(Credit: Jagtar Khinda)

**SAFETY HARNESS** - Harness with shoulder, leg, and waist straps of approved OSHA design used as personal fall protection in conjunction with appropriate lanyards and tie off devices.



Executive Director of Bridge Preventive Maintenance and Repair Thomas Whitehouse Hoisted in the Air While Wearing a Full Body Harness - Demonstrating How to Deploy and Use the Foot Stand to Prevent Orthostatic Intolerance (Commonly Referred to as Suspension Trauma), Which Can be Fatal if Not Prevented. (Credit: Gean Pilipiak)

**SALT SPLASH ZONE PAINTING** - A bridge painting process that involves preparation of the area to be painted by power wash, using clean water or steam. After power washing, hand and power tools are used in areas which have started to show deterioration from accumulated de-icing agents. Solvent cleaning is done in locations where oil and grease need to be removed from the steel surface. A spot PRIMER coat and finish coat are then applied by brush or roller. Occasionally, when there is no danger of overspray, spray painting may be performed.

**SCALING** - Also known as surface breakdown, scaling is the gradual and continuing loss of concrete's surface mortar and aggregate over an area due to the chemical breakdown of the cement bond. Scaling is accelerated when the member is exposed to a harsh environment.

**SCOUR** - The washing away of stream bed material around or underneath the bridge abutments or piers that is caused by water channel flow.



Scour on Pier 2 End Face of Mosholu Parkway Bridge Over Bronx River in 2008.  
(Credit: NYSDOT)

**SCREED** - A long section of metal or wood which is dragged across freshly placed concrete to both smooth the surface and consolidate the concrete.



Screed at East 8<sup>th</sup> Street Ramp in 2011, and at West Approach of Gerritsen Inlet Bridge in 2014.

**SCUPPER** - An opening in the floor portion of a bridge to provide means for rain or other water accumulated upon the roadway surface to drain through it into the space beneath the structure.



Scuppers on the Pulaski, Madison Avenue, and Brooklyn Bridges. (Credit: NYSDOT)

**SET** - When the consistency of mortar changes from plastic to hard.

**SHORING** - Temporary bracing to support a structure.



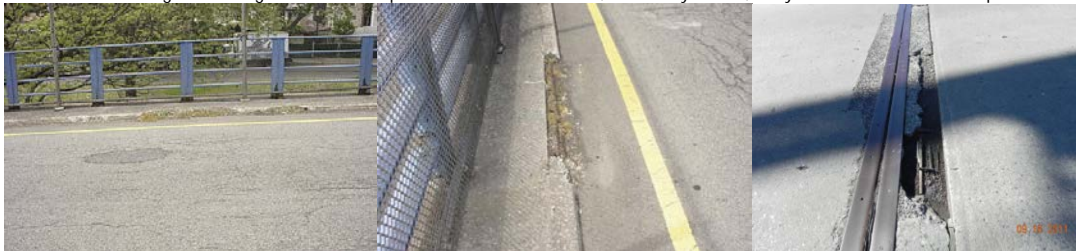
2014: Timber Shoring at Spans 7 and 8 of the Harlem River Drive over Ramp to and From Northbound Harlem River Drive. Steel Shoring of the Damaged Column at Pier 4 of the Crocheron Park Pedestrian Bridge. Timber Shoring at Piers 5 and 6.

**SHOTCRETE** - MORTAR or small-AGGREGATE concrete that is conveyed by compressed air through a hose and applied at high velocity to a surface. Also known as gunite and sprayed concrete.

**SOFFIT** - The underside of a structural component, such as a beam or arch.

**SOUNDING** - A method of checking for voids or DELAMINATIONS in concrete by striking a hammer against the structure and listening for a hollow sound.

**SPALLING** - The flaking or breaking out of concrete parallel to the main surface, caused by a blow, or by the action of weather or pressure.



Spalled Section of Curb on the East 8<sup>th</sup> Street Bridge in 2006. (Credit: NYSDOT) Spalling With Exposed Rebar on the Beginning Abutment Joint Header of the Westchester Avenue Bridge over the Bronx River in 2011.

**SPAN** - Portions of the bridge SUPERSTRUCTURE between consecutive supports or joints.

**SPECIFICATIONS OR SPECS** - A detailed listing of required construction materials and methods to be used in the project. This information is a supplement to the blue prints and working drawings.

**SPLAY CASTING** - A steel or cast-iron collar fitted around a bridge suspension CABLE at the location where it spreads out (splays) into separate bundles of wires which are then attached to the ANCHORAGE EYEBARS. It is used to control the degree and location of the splay. These castings are usually located at the entry point of the cable into the anchorage chamber.

**SPOT PAINTING** - When the surface to be painted is contaminated with de-icing salts, sea salt, bird excrement, or other corrosive agents, the area is prepared by power washing, using clean water or steam. When grease or oil is present, it is removed by solvents. Mechanical cleaning with hand and/or power tools is performed in the areas containing deteriorated paint. A spot PRIMER coat and a single finish coat are applied by brush or roller. Occasionally, when there is no danger of overspray, spray painting may be performed.

**STAGED CONSTRUCTION** - Construction done so that traffic may be maintained on a portion of an existing bridge structure while a longitudinal section of a new structure is constructed. Traffic is then shifted over to that portion of the new structure while the existing structure is removed and the new structure is completed.

**STEEL ARCH BRIDGES** - Steel arch bridges consist of either a single arch or a series of arches fashioned from steel or concrete. Aesthetically one of the more attractive bridge types. Arch structures can prove economical to construct if the bridge spans between high ABUTMENTS. At present, there is only one bridge of this kind in steel under the guardianship of the NYCDOT; the twin-arched *Washington Bridge*, positioned over the Harlem River at 181<sup>st</sup> Street. This bridge opened to traffic in December 1888 and, with its approaches, is 2,375 feet long.



Washington Bridge. (Credit: NYSDOT) Washington Bridge in 2008. (Credit: Duane Bailey-Castro) 2010.

**STEM** - The vertical part of a retaining wall, usually made of concrete or masonry.



East Face of Brooklyn Bridge North Stem Wall. (Credit: NYSDOT) West 176<sup>th</sup> Street Pedestrian Bridge Beginning Abutment Stem Wall.

**STOPPING SIGHT DISTANCE** - The distance required for a vehicle to stop before hitting a stationary object in its path. It is equal to the distance required for the driver to react and apply the brakes plus the distance required for the vehicle to stop once the brakes are applied.

**STRAIN GAUGE TESTING** - Small strips of material (imagine a small band-aid) are glued onto part of a structure to measure the stress in the material under load. Inside the small "band-aid" are tiny electrical wires. When a structure is under load it stretches (tension) or contracts (compression). When this happens, the resistance in the tiny wires in the strain gauge changes, resulting in a change in the wire's current. What is actually being measured are changes in the electrical current in the tiny wires. Knowing the physical properties of the structural member that the gauge is attached to, (such as steel), a calculation is can then be made to convert these changes in current to changes in stress. The readings are taken with special instruments that record the information over the desired period of time or loading sequences.



June 2012 - Metropolitan Avenue Bridge. Summer College Intern Nikita Gupta Unsealing the Wire for Strain Gauge Testing. July 2012 – Unionport Bridge. Summer College Intern Kevin Hillery Setting up Inclinometer Calibration. August 2012 – Hunters Point Avenue Bridge. Kevin Hillery Checking Strain Gauge Connections With a Millimeter. (Credit: Vera Ovetskaya)

**STRAND** - Comprised of hundreds of thin wires laid parallel to form a bundle, strands comprise the base element in the CABLES, or main cables, on a SUSPENSION BRIDGE or cable stayed bridge.

**STRINGER** - A part of a bridge's SUPERSTRUCTURE, a stringer is essentially a BEAM parallel to the span used to support the road DECK.



Stringers on the Manhattan Bridge. (Credit: NYSDOT) Bridge Repairer and Riveter Joseph Antony Repairing a Red-Flagged Stringer on the Bridge. (Credit: Hany Soliman)

**STRUCTURAL DEFICIENCY** - An engineering term-of-art used by the Federal government to indicate that there are elements of the bridge that need to be monitored and/or repaired. It covers a wide range of conditions and does not reflect the fundamental integrity of a structure. Any city bridge deemed unsafe would be shut to the public.

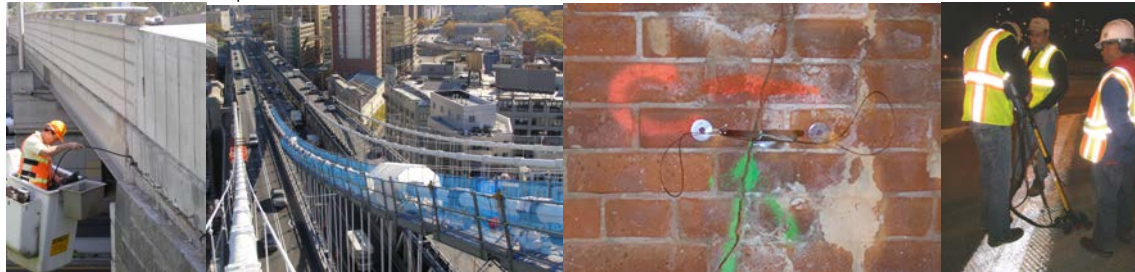
**STRUCTURAL HEALTH MONITORING** - The continuous or regular monitoring of the condition of a structure or system using built-in or autonomous sensory systems, and any resultant intervention to preserve structural integrity.

**Borescope Investigations:** The borescope is a high-tech device combining fiber-optic technology with digitized computer memory. It allows scanning and photographing of otherwise inaccessible locations.

**Corrosion Sensors:** Corrosion sensors were developed for the first time under a FHWA contract specifically for New York City's suspension bridges.

**Fiber Optic Sensors:** Fiber optic sensors can measure very small displacements as well as strain gauges, but are more resilient and insensitive to temperature changes. The information is readily transmitted online and lends itself to real-time monitoring.

**Ground Penetrating Radar:** Ground penetrating radar uses the propagation and retraction of high frequency waves through materials such as concrete to detect the presence of voids.



Director of Bridge Management Kevin McAnulty Inspecting the Bridge Carrying the Belt Parkway over Ocean Parkway, Utilizing the Unit's Borescope. Experimental Corrosion Sensors Installed for a Test on Cable D of the Manhattan Bridge in 2011 (Left Corner). A Fiber Optic Sensor Monitoring a Crack in the Masonry of the Brooklyn Bridge's Manhattan Approach. A Ground Penetrating Radar Inspection of the Belt Parkway Bridge over Ocean Parkway. (Credit: Bojidar Yanev)

**SUBSTRUCTURE** - The name given to those elements below a bridge's road deck system, namely the ABUTMENTS, ANCHORAGES, BEARINGS, and PIERS.

**SUPERSTRUCTURE** - The superstructure is all that part of a structure above the bearings of simple and continuous spans, skewbacks of arches and top of footings of rigid frames; excluding backwalls, WINGWALLS and wing protection railings.

**SUSPENDER** - A wire rope or a short vertical rod that transmits forces from the roadway of a SUSPENSION BRIDGE to the supporting CABLES. The suspenders assist in supporting the bridge floor system and its superimposed loads by transferring loads to the main suspension members of the structure. They support other members against sagging, twisting, or other deformation due to its own weight.



Manhattan Bridge Suspenders. (Credit: NYSDOT and Jagtar Khinda)

**SUSPENSION BRIDGES** - Suspension bridges are high level bridges with spans that usually exceed 1,500 feet in length. Supported by large wire CABLES that are anchored to masses of concrete and which pass over the tops of towers, the road DECK is suspended at regular intervals by smaller cables called suspenders. While the main cables carry the entire live and dead load, stiffening TRUSSES are required to distribute the LIVE LOAD and prevent excessive deflection at any point. The Brooklyn, *Manhattan* and *Williamsburg* Bridges are noted New York City examples of this type.



Manhattan Bridge. (Credit: Bernard Ente) Williamsburg Bridge.  
(Credit: Peter Basich)

**SWING BRIDGES** - Swing bridges are movable bridges that are supported on a center PIER in the center of a waterway, and are opened by rotating the SUPERSTRUCTURE horizontally on wheels riding on a circular track. Two channels are provided on either side of the bridge for navigational ease when the bridge is in the open position. Because swing bridges are slow to operate and restrict channel width, they are rarely constructed today. Examples of swing bridges in New York City include the *Third Avenue*, *Madison Avenue*, *145<sup>th</sup> Street*, *University Heights*, *Grand Street* and *Macombs Dam* Bridges.



Third Avenue and University Heights Bridges. (Credit: Michele N. Vulcan) Grand Street Bridge.  
(Credit: NYSDOT) Macombs Dam Bridge. (Credit: Michele N. Vulcan)

**TEMPORARY BRIDGE** - A pedestrian and/or vehicular bridge built to carry traffic around an active construction site in lieu of STAGE CONSTRUCTION. The structure is removed after the new bridge is open to traffic.



2011: Fresh Creek Temporary Bridge. 2004: Almost Completed New Third Avenue Span and Temporary Bridge.  
(Credit: Daniel Hom) 2005: Pontoon Bridge Used During the Emergency Reconstruction of the Ocean Avenue Pedestrian  
Bridge over Sheepshead Bay. (Credit: Russell Holcomb)

**THERMAL EXPANSION** - Temperature-induced changes in the lengths of steel and other materials used to construct bridges. Thermal expansion governs the design of joints and can, in extreme cases, impact the operation of movable bridges.

**TORSION** - Twisting force usually caused by unbalanced or asymmetrical loading.

**TOWER** - Often the most majestic element in a SUSPENSION or cable stayed bridge, the *tower* serves as a support for the structure's main CABLES.



Inspectors on Manhattan Bridge Tower. (Inspector Credit: NYSDOT) Manhattan Bridge Tower. (Credit: Michele N. Vulcan) Manhattan Bridge Tower Detail. (Credit: Russell Holcomb) Brooklyn Bridge Tower. (Credit: Earlene Powell) Brooklyn Bridge Brooklyn Side Tower Detail. (Credit: Jagtar Khinda)

**TRAVELER MAINTENANCE** - The maintenance of a traveler (movable underdeck platform) that runs under the East River Bridges so maintenance, inspections and repairs can be performed to the underside of the bridge. A traveler platform is typically perpendicular to the girders and the platform runs on a rail system between substructure elements.



Manhattan Bridge Traveler. (Credit: NYSDOT)

**TREMIE SEAL** - concrete placed under water through the use of a tremie placement tube. As the concrete is placed, water is displaced and the tube is gradually raised keeping the outlet below the level of the placed concrete. Tremie seals are usually used where piers need to be constructed in fairly deep water and it is difficult to dewater the excavation.

**TRENCH DRAIN** - These drainage structures consist of a slotted opening with bars perpendicular to the opening. Trench drains (also known as slotted drains) function as weirs with flow entering from the side. They can be used to intercept sheet flow, collect gutter flow with or without curbs, modify existing systems to accommodate roadway widening or increased runoff, and reduce ponding depth and spread at grate inlets. The two types of trench drains in general use are the vertical riser type and the vane type.



Manhattan Bridge Trench Drain.

**TRUSS** - A rigid framework built of interconnecting steel beams, creating a large "girder" to support the floor system and transfer loads to the substructure over a longer span.



Brooklyn Bridge Franklin Square Truss. (Credit: Andy Hoang). General view of Manhattan Bridge Trusses B and C From the Lower Roadway on the Main Span. (Credit: NYSDOT) Chambers Street Pedestrian Bridge Truss. Madison Avenue Bridge Truss Swinging. (Credit: NYSDOT)

**TRUSS BRIDGES** - Truss bridges possess road decks that are supported by Steel TRUSSES that rest on PIERS and ABUTMENTS, and which span short distances. The 174th Street Bridge in the Bronx is an example of a truss bridge.



East 174<sup>th</sup> Street Truss Bridge over Sheridan Expressway. (Credit: NYSDOT)

**TURBIDITY CURTAIN** - A flexible, impermeable barrier used to trap sediment in water bodies. This curtain is generally weighted at the bottom to ensure that sediment does not travel under the curtain, which is supported at the top through a flotation system. Turbidity curtains prevent the migration of sediment from a work site in a water environment into the larger body of water. Also known as a turbidity barrier or silt curtain.



Installation of a Turbidity Curtain to Protect the Shore During Construction of the Temporary City Island Bridge in 2014.

**VERTICAL LIFT BRIDGES** - Vertical lift bridges are movable bridges which have road DECKS that operate in much the same fashion as an elevator. Comprised of supporting end CABLES that are attached at one end to the road DECK and at the other to rotating drums, these bridges are raised and lowered to allow for the safe passage of marine traffic. The *Roosevelt Island Bridge*, *103rd Street - Wards Island Pedestrian Bridge*, *Ninth Street Bridge*, and *Broadway Bridge* are examples of this type of bridge.



Lifted Roosevelt Island Bridge. (Credit: NYSDOT). Wards Island Pedestrian Bridge. Ninth Street Bridge. (9<sup>th</sup> Street Credit: Bojidar Yanev) Broadway Bridge. (Credit: Bernard Ente)

**VIADUCT BRIDGES** - Viaduct bridges are multi-span bridges containing two end spans and any number of intermediate SPANS. The end spans are supported by an ABUTMENT on one end and a PIER on the other. The intermediate spans held aloft by piers.



Park Avenue Viaduct Bridge. Experiencing the Viaduct in a Whole New Way During Summer Streets 2012.

**WARNING GATE** - Warning gates are installed at movable bridges to decrease the likelihood of vehicles and pedestrians passing the stop line and entering an area where potential hazards exist because of bridge operations. The gates are striped with 16-inch alternate vertical, fully reflectorized red and white stripes. Flashing red lights are included on the gate arm and they are only operated if the gate is closed or in the process of being opened or closed.



Metropolitan Avenue Bridge over English Kills Warning Gates. (Credit: NYSDOT) West 207<sup>th</sup> Street/West Fordham Road Bridge Warning Gate.

**WATERPROOFING MEMBRANE** - A protective sheet placed between a WEARING SURFACE and concrete DECK to shield the concrete deck from water and corrosive chemicals which could cause DELAMINATION and SPALLING.

**WEARING SURFACE** - The topmost layer of material applied on the DECK or roadway that receives the traffic loads; also known as wearing course. Wearing surfaces perform two functions in protecting the deck: they provide a seal and prevent water and deicing chemicals from penetrating into the deck slab, and they provide a smooth, skid-resistant surface for vehicular traffic, minimizing impact forces to the structure.



Brooklyn Bridge Wearing Surface. Manhattan Bridge Wearing Surface and Safety-Shaped Barriers. (Credit: NYSDOT) West 86<sup>th</sup> Street Pedestrian Bridge (Southwest Reservoir Bridge) Wooden Wearing Surface.

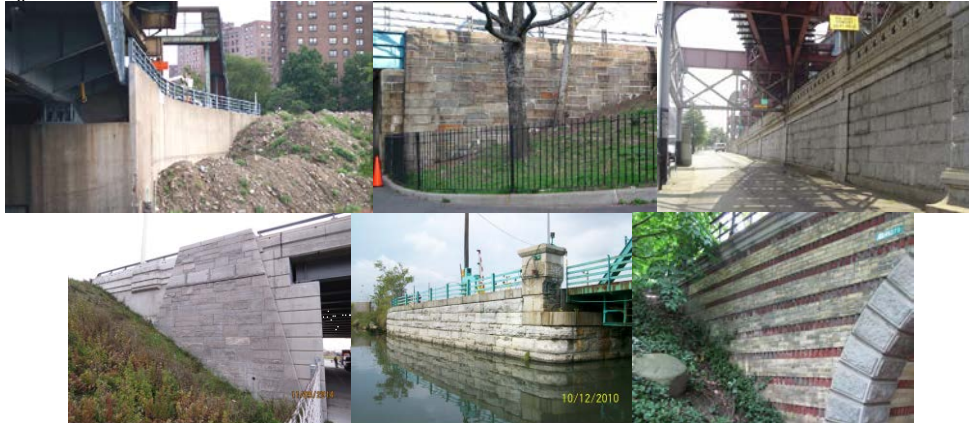
**WELD** - To fasten together metals by bonding with molten metal.



Welding Steel Packs for the Southbound Bruckner Expressway Bridge.



**WINGWALL** - Walls of reinforced concrete or stone that prevent the soil behind the ABUTMENT from eroding away and leaving a void beneath the APPROACHES of the bridge. Wingwalls may extend over longer distances into retaining walls. Wingwalls are extensions of ABUTMENT STEMS, not supporting direct loads from the SUPERSTRUCTURE.



Broadway Bridge, Bay Ridge Avenue Bridge, Ed Koch Queensboro Bridge, Belt Parkway over Rockaway Parkway, Grand Street, and Center Drive (Playmates Arch) Wingwalls. (First Five Credit: NYSDOT)

**WINTER INSPECTION** - Inspection of a site known to have a greater hazard potential during winter. This may be due to low ambient temperatures, accidental or deliberately set fires.



Timber Shoring Supporting a Failing Steel Beam – a Potential Winter Hazard.  
(Credit: Bojidar Yanev)

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# COMPONENTS OF THE PREVENTIVE MAINTENANCE PROGRAM

## Bridge Protection through Dirt and Water Control

**Cleaning of Abutment and Pier Tops** Removal of debris, dirt and vegetation from abutment and pier tops; cleaning and lubrication of bridge bearings.

### Pier Top Cleaning of Bridges Over Water (including Pigeon Waste Removal)

This work consists of removing all debris, including pigeon waste, from bridge abutments and pier tops. Workers pull the material from the edges into the center of the pier with a broom or shovel while supervisors monitor the work to ensure that, to the maximum extent practicable, material is not pushed from the pier during the cleaning process. Using hand tools, debris is collected and removed for disposal. When removing pigeon waste, a 3.5 gallon manual spray canister is used to apply a bleach/water solution to the waste and to the area to be cleaned. The solution is sprayed at a low height to limit aeration and prevent material from falling into the waterway. Once the waste has been sufficiently treated, it is removed for proper disposal.

### Cleaning and Lubrication of Bearings of Bridges Over Water

This work consists of cleaning bearings, as well as removing old and applying new lubricant where required. For bearings on flat, solid surfaces, located 12 inches or more from the edge of the structure, no containment/bulkhead will be used. A containment/bulkhead will be used when cleaning or lubrication bearings located less than 12 inches from the edge of the structure. Dirt and old lubricant are collected and disposed of properly.

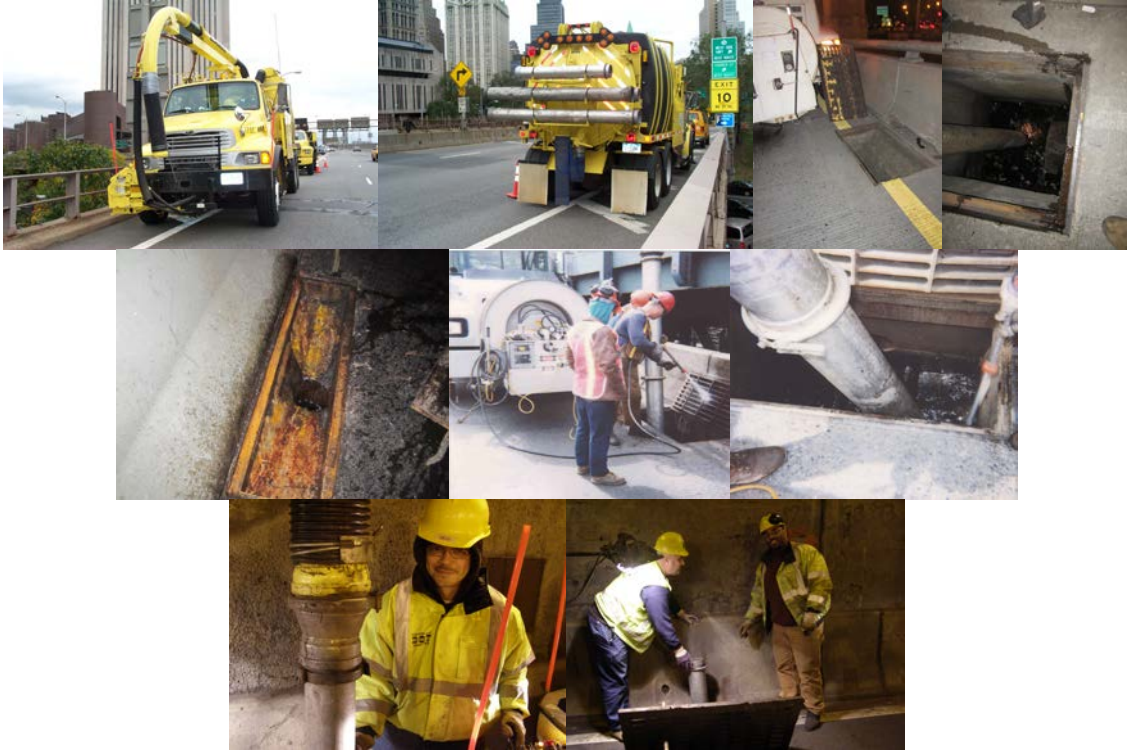
**Debris Removal** Removal of spilled trash; removal of rocks, wood, plastic or metal objects, tires, mufflers, wheel covers, and other traffic droppings; removal of paper products, bottles, cans, accumulated dirt and other trash. Debris removal is also required for walkways and plazas. For movable bridges and bridges over water, the protective fender systems need to be cleared of debris. The removal of debris from bridges is an important and critical component of maintenance. Debris can cause safety and hazard conditions. In addition, debris traps moisture and salts on the structure and prevents proper drainage.



Assistant City Highway Repairer Lashawn Elam and Highway Repairer Anita Ramos Removing Vegetation and Other Debris. Assistant City Highway Repairer E'boni Brown Removing Debris under the Henry Hudson Parkway at 58<sup>th</sup> Street. (HHP Credit: Edward Pedersen)

**Cleaning of Drainage System** Removal of debris, dirt and vegetation from drainage systems, including gutter gratings, gutters and leaders, scuppers, down spouts and scupper piping systems. The cleaning of surface gratings and gutters requires hand tools, brooms and brushes. In some cases, an air compressor might be needed to blow out some gutters. Cleaning the scuppers and scupper piping systems requires specialized equipment.

## **COMPONENTS OF THE PREVENTIVE MAINTENANCE PROGRAM**



Drain Truck on Brooklyn Bridge Ramp. (Credit: Peter Basich) Drain Cleaning on the Williamsburg Bridge in September 2011. (Credit: Shaikh Islam) Cleaning Catch Basins on the Manhattan Bridge. Drain Crew: Highway Repairer Anthony Irizarry, Supervisor Highway repairer Michael Parise, and Assistant City Highway Repairer Giovanni Caballero. (Crew Credit: James Campbell)

### **Cleaning of Expansion Joints**

Removal of debris and dirt from the troughs using compressed air or water; and cleaning and resealing of the joints. Performed on all bridges. Expansion joints are located at the surface level where they are subjected to impact and vibration and are exposed not only to the elements such as water, dust, grit, ultra-violet rays and ozone, but also to the effect of chemicals such as salt solutions, cement alkalis and petroleum derivatives. In addition to regular lubrication of moving parts, penetration of water, silt and grit must be effectively prevented or provision made for their removal.



Manhattan Bridge Expansion Joint Cleaning in 2008: Supervisor Highway Repairer Thomas Cruz, Assistant City Highway Repairer Antonio Asaro, Highway Repairer Louie Dumeng, and Oiler Stanley Karolewicz. Assistant City Highway Repairers Jonathan Adorno and Antonio Asaro, Oilers Stanley Karolewicz and Ronald Grady. (Credit: Thomas Whitehouse)



Expansion Joint Cleaning on the Williamsburg and Ed Koch - Queensboro Bridges in September 2011. (Credit: Shaikh Islam)

## COMPONENTS OF THE PREVENTIVE MAINTENANCE PROGRAM

**Cleaning of Open Grating Decks** Removal of debris and dirt from open-grating decks and washing with high-pressure water jets.

**Sweeping** Sweeping each bridge with a mechanical sweeper along each curb.



Mechanical Sweeper – Side and Rear Views. (Credit: Peter Basich)

**Washing of Decks and Salt Splash Zones** Washing of decks and salt splash zones to remove remnants of de-icing salts; use of compressed air and water jets to clean tight corners.



Washing the Williamsburg Bridge in July 2011 and the Ed Koch Queensboro Bridge in August 2011.

### Roadway Surface Maintenance

**Crack Sealing in Pavement and Curbline Sealing** Cleaning of cracks and filling them with sealant; sealing with mastic material along the curb line to prevent water leakage onto bridge components. This maintenance function is sensitive to weather conditions.

**Repair of Sidewalks and Curbs** Sidewalk repair to restore sidewalk to original condition. Curb repair to be undertaken along with this task.



Sidewalk Repairs in August 2010 at Houston Street Bridge over the FDR Drive: Tractor Operator Robert Noordzy (in Tractor), Bricklayer Vincent Sciulla, Cement Masons Frank Finizio and Victor Porowski, and Bricklayer Luigi Cuffari. Bridge Repairer and Riveter Brook Budd and Bricklayer Luigi Cuffari. Tractor Operator Noordzy (in Tractor), Cement Masons Frank Finizio (Foreground) and Victor Porowski (Background), and Bricklayer Vincent Sciulla. Bricklayer Vincent Sciulla, Bridge Repairer and Riveters James Philip and Brook Budd, Bricklayer Luigi Cuffari, Tractor Operator Robert Noordzy, Supervisor Bricklayer Edward Alfano, and Cement Masons Frank Finizio and Victor Porowski. (Credit: Russell Holcomb)

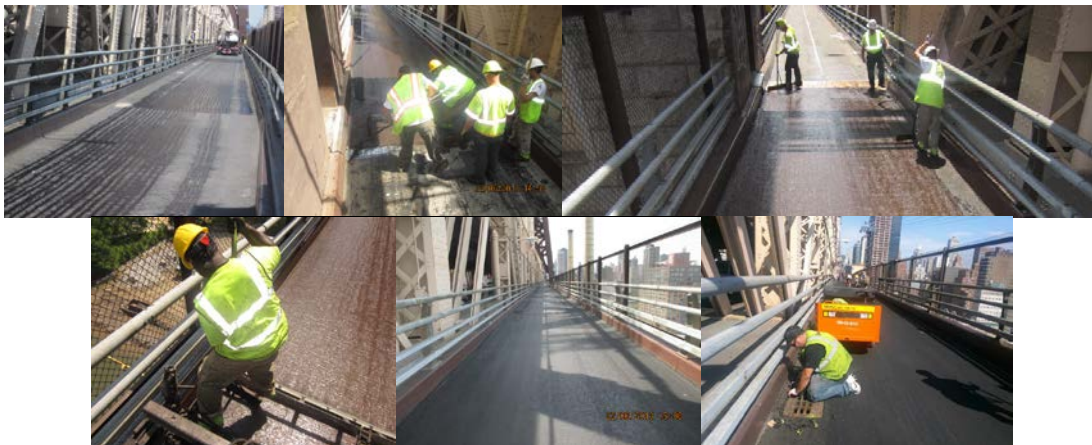
## COMPONENTS OF THE PREVENTIVE MAINTENANCE PROGRAM

### Replacement of Wearing Surfaces

Removal of old wearing surface; preparation of exposed concrete slab or steel plate; installation of new wearing surface. The wearing surface is a two-inch course of bituminous concrete. Also includes minor deck repair, cleaning and waterproofing of deck.



Resurfacing the Deck of the Queens-Bound Upper Roadway of the Ed Koch - Queensboro Bridge in June 2014. (Credit: Sunil Desai)



Repairing the Concrete Overlay on the South Upper Roadway of the Ed Koch – Queensboro Bridge in June 2013. (Credit: Sunil Desai)



Repaving the Williamsburg Bridge in 2011.

### Electrical and Mechanical Component Maintenance of the 4 East River Bridges and 24 Movable Bridges

#### Maintenance of Electrical Devices

Checking and servicing electrical systems such as travelers, relays, auxiliary contacts, meters, overload relays, time delay relays, span and tail locks, brake systems, transmitters, transformers, fuses, wiring, resistors, etc. Also includes checking interior anchorage lighting, caution lighting, navigation lighting, and necklace lighting. During inspection, the travelers of the East River Bridges are operated to ensure proper calibration of electric motors. If motors are not calibrated properly, the travelers may rotate and jam along their guides. Many of the movable bridges are very old and replacement parts are difficult to find or may not be available any longer. When necessary, Division personnel fabricate machine parts such as shafts, and brake and warning gate components. In addition to inspection

## COMPONENTS OF THE PREVENTIVE MAINTENANCE PROGRAM

of systems, the electrical technicians replace poor condition components with electric systems before corrective maintenance is required. This preventive maintenance strategy avoids disruption of bridge service to motorists. This is important, because once corrective maintenance is necessary, it may require the bridge to be out of service for lengthy periods.

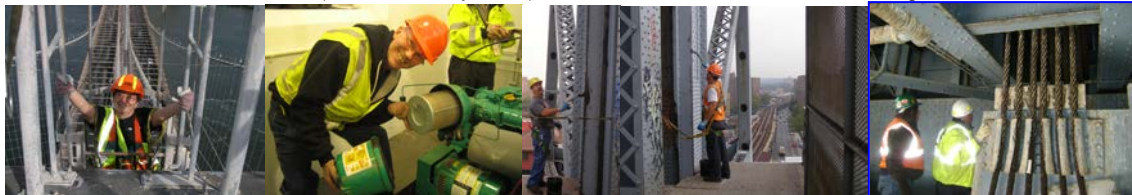


Construction Project Manager Gholamali Mozaffari, and Electricians Nelson Crooks and Gary Emmanuel Fixing Machinery in the Ninth Street Bridge Operator House in April 2008. (Credit: Vera Ovetskaya) Repairing the Navigation Lighting on the Hunterspoint Bridge. On the Bridge: Oilers Carl Wharton, Richard Morreale, and Paul Califano, Mozaffari Ali, Electrician Naum Golburt, and Highway Repairers Manny Nardiello and Kevin Donahue. In the Snooper Bucket: Harry Parmaman and Supervisor Electrician Jose Done. (Credit: Samuel Teaw)

**Maintenance of Mechanical Components** Cleaning and lubrication of all movable parts and bridge cables for the four East River Bridges and the twenty-four movable bridges. Cleaning and lubrication of travelers; cleaning, wedging and oiling of the main cable strands and eyebars; cleaning of truss bearings; cleaning and lubricating air and fire line valves. Cleaning and lubrication is required to keep components from corroding and becoming immobile. Allowing components to seize could cause operating failure and introduce unsafe structural stresses.



Repairing the Brooklyn Bridge Standpipe System, 130 Feet Below the Roadway. Maintenance Crew Conducting the Annual Cleaning and Lubrication of the Solid Rod Suspenders Spherical Bearings on the Brooklyn Bridge. 2<sup>nd</sup> Photo - Oilers Steven Marxhausen, Rene Francis, Richard Morreale, Thomas McAuliffe, and Andrew Sorrentino. (Credit: Anatoly Orlov) Oiler T. McAuliffe at the 9<sup>th</sup> Street Bridge



Oiler Tom Strommen Maintaining the Hydraulic Power Unit at the Hamilton Avenue Bridge in February 2010. (Credit: Vera Ovetskaya) Cleaning and Lubricating the Broadway Bridge. (Credit: Reza Taheri) Executive Director of Bridge Preventive Maintenance and Repair Thomas Whitehouse (Wearing Yellow Jacket) Inspecting the Broadway Bridge Machinery Room and Instructing the Contractor. (Credit: Albert Hong) Assistant Mechanical Engineer Vera Ovetskaya Climbing to the Brooklyn Bridge Tower in 2008. (Credit: Gennadiy Kaplun)

### Steel Protection – Painting\*\*

**Total Paint Removal and Repainting** Constructing negative pressure containment (Class 1A); washing and surface blasting to commercial-blast or near-white metal condition (Society for Protective Coating SP-6 or SP-10); constructing Class 3P containment; power tool cleaning to bare metal condition (Society for Protective Coating SP-11 or SP-15); lead monitoring and disposal; applying lead-free paint; primer, intermediate coat and top coat. Surface preparation is

## COMPONENTS OF THE PREVENTIVE MAINTENANCE PROGRAM

accomplished by abrasive blasting. The containment materials include tarps, plywood, scaffolding, and cables. Equipment includes blasting machines, needle guns, spray pumps, compressors, dust collectors, filters, and ductwork.

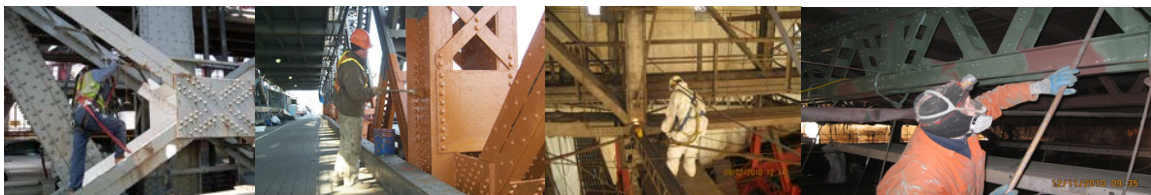


Assembly of Containment System at Franklin Square – in July and September 2010. Brooklyn Bridge Side Span Containment System – in November 2010.

The Division treats all lead paint waste as hazardous waste, and stores and disposes of it according to the Resource Conservation and Recovery Act (RCRA). Waste is stored in approved leak-proof drums and containers which are, in turn stored temporarily in a fenced, secured area on-site until they are transferred to a disposal/recycling facility.

**Full-Steel (Overcoating)** Overcoating of the entire bridge. Solvent cleaning and cleaning of steel surfaces in areas with deteriorated paint is conducted using approved environmentally safe paint removal techniques, and either power tools, hand tools or combination hand/power tools. Power tool cleaning is performed in a Class 3P containment, and hand tool cleaning in a Class 4 containment. Combination hand/power tool cleaning is performed in a Class 3P containment. A localized primer coat and a single finish coat are then applied by brush, roller, or spray over the entire bridge.

**Salt Splash/Spot Painting** This is a new process that combines salt splash with spot painting. It involves preparation of the area to be painted by power wash, using clean water or steam. Solvent cleaning is done in locations where oil and grease need to be removed from the steel surface. Areas to be power washed and painted are: the superstructure (up to six feet upwards from the deck), the underdeck steel (up to three feet from each side of the center line of the expansion joints), and the outside of the bridge's steel faces. In addition to these painted areas, we now perform localized surface preparation and painting of any deteriorated locations as mentioned in our spot painting definition above. After power washing, hand and power tools are used in areas that have started to show deterioration from accumulated de-icing agents. Power tool cleaning is performed in a Class 3P containment, and hand tool cleaning in a Class 4 containment. Combination hand/power tool cleaning is performed in a Class 3P containment. A spot primer coat and finish coat are then applied by brush or roller. Occasionally, when there is no danger of overspray, spray painting may be performed.



Williamsburg Bridge in June 2010: Application of Finish Coat at North Truss Diagonal. Salt Splash Painting on the Williamsburg Bridge. (Salt Splash Credit: Fouad Althaibani). Inspection of Blasting Surfaces Inside the Franklin Square Arch Containment in September 2010. Brooklyn Bridge Main Span Painting in December 2010.

## **COMPONENTS OF THE PREVENTIVE MAINTENANCE PROGRAM**

<b>TASK</b>	<b>IMPACT*</b>
Debris Removal	6.1%
Sweeping	5.3%
Clean Abutments & Piers	8.1%
Clean Open Grating	7.0%
Clean Expansion Joints	9.1%
Wash Deck & Splash Zones	5.1%
Paint	4.2%

<b>TASK</b>	<b>IMPACT*</b>
Spot Paint	3.7%
Drain Cleaning	10.6%
Sidewalk & Curb Repair	2.5%
Pavement & Crack Sealing	12.2%
Wash Underside	15.9%
Mechanical Device Maintenance	6.7%
Replace Wearing Surface	3.5%

\*IMPACT ON BRIDGE RATING



Cleaning the Brooklyn Bridge Brooklyn Anchorage in July 2007. (Credit: Serag Saad) Bridge Repairer and Riveter James Philip Using a Track-Mounted Torch to Bevel the Edge of a Steel Plate in September 2012. (Credit: Thomas Whitehouse) Checking the Navigation Lights at Pier #5 of the Third Avenue Bridge.

\*Consortium of Civil Engineering Departments of New York City Colleges and Universities. *Preventive Maintenance Management System For New York City Bridges: Update 1998. Technical Report No. 98-1. 1999.* \*\*Descriptions modified in November 2003.



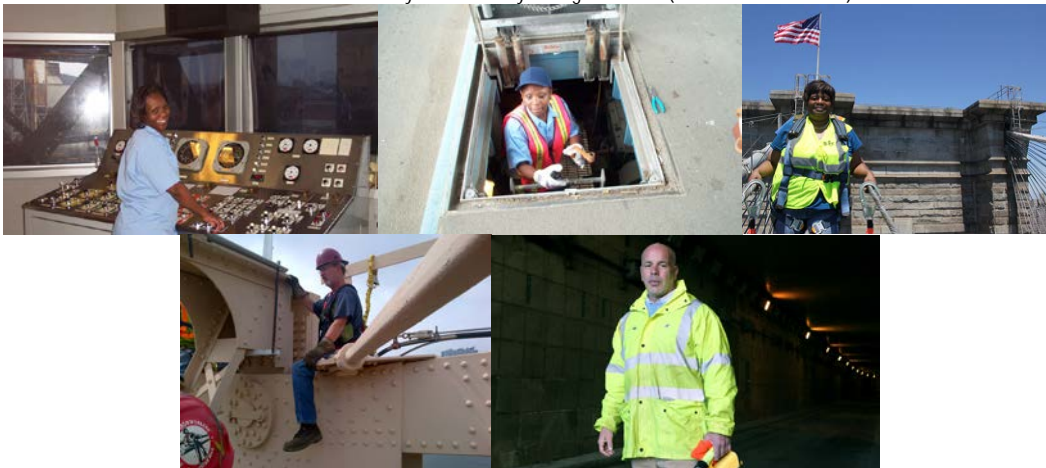
## ***MAINTENANCE PERSONNEL RESOURCES IN 2014***

Preventive maintenance, corrective repair, flag repair, and painting work on the bridges and other structures within the City is performed by mechanics and supervisors in a variety of trades. The bridge operators provide safe and expedient passage to all marine and vehicular traffic under and on movable bridges. A breakdown of this work force by trade is:

	SUPERVISORS	MECHANICS
BRICKLAYERS	1	3
BRIDGE OPERATORS	22	70
BRIDGE PAINTERS	6	22
BRIDGE REPAIRERS/RIVETERS	3	39
CARPENTERS	3	16
CEMENT MASONS	-	9
ELECTRICIANS (INCLUDES HELPERS)	5	23
HIGHWAY REPAIRERS (INCLUDES ASSISTANTS & SEASONAL WORKERS)	22	69
MACHINISTS	-	1
MOTOR GRADER OPERATORS	-	1
OILERS	-	14
TRACTOR OPERATORS	-	1
<b>TOTALS</b>	<b>62 SUPERVISORS</b>	<b>268 MECHANICS</b>



Bridge Repairer Riveter Damian Venezia Squeezing Between the Girders to Access a Floor Beam That Needed to be Reinforced on the Ed Koch Queensboro Bridge – August 2010. (Credit: Hany Soliman) Carpenters John Horgan and Ruben Urena, and Assistant Civil Engineer Fouad Althaibani Repairing the PS-5 Bridge in November 2011. (Credit: Thomas Whitehouse) Cement Mason Victor Porowski Spreading Sodium Acetate on the Walkway of the Brooklyn Bridge in 2013. (Credit: Paul Schwartz).



Supervisor Bridge Operator Delonda Bates-Pinkney at the Controls of the 9th Street Bridge. She has worked for the Department since 1989. (Credit: Keith Burrowes) SBO Bates-Pinkney Preparing to Check the Bridge's Mechanisms. (Credit: Vera Ovetskaya) Deputy Director of In-House Painting Earlene Powell on the Brooklyn Bridge. Bridge Repairer and Riveter Kevin Clarkson Installing Anemometers on the Ed Koch-Queensboro Bridge in July 2013. (Credit: Paul Schwartz). Administrative Superintendent of Bridge Operations George Kern inspecting the Battery Park Underpass after Hurricane Sandy. (Credit: Alexander Engel)

Revised 11/17/14

## *MAINTENANCE PERSONNEL RESOURCES IN 1900*

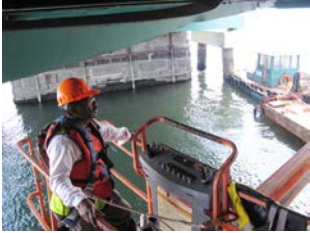
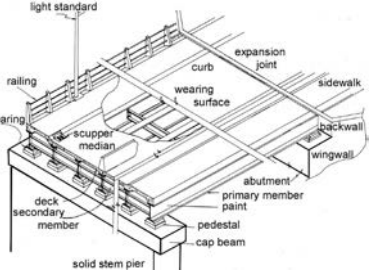


A breakdown of the Department of Bridges work force by trade in 1900:

	SUPERVISORS	MECHANICS
AXEMAN		8
BLACKSMITH	1	2
BOILERMAKER		1
BRICK MASON	1	4
BRIDGE TENDER	15	137
CARPENTER	1	23
DOCKBUILDER		1
DRIVER		11
FIREMAN		18
FITTER		3
GATEMAN		7
INSPECTOR (INCLUDING STEEL)		10
LABORER (INCLUDES HELPERS)	7	111
LEVELER		4
LINEMAN		3
MACHINIST (INCLUDING HELPERS)		13
MASONRY INSPECTOR		7
MECHANIC	1	2
PAINTER	1	16
RIGGER		11
RIVETER	1	6
RODMAN		4
SHIP CARPENTER		4
SOUNDER		4
STABLEHAND		3
STEAM ENGINEER (INCLUDES DYNAMO)		15
STONE CUTTER/STONE MASON	1	2
SUPERINTENDENT ELECTRIC LIGHT	1	
SUPERVISOR (INCLUDES ASSTS)	12	
TOOLMAN		2
TRANSITMAN		7
TRIMMER		2
<b>TOTALS</b>	<b>42 SUPERVISORS</b>	<b>441 MECHANICS</b>



Willis Avenue Bridge Curbing and Road Repair in the Early 1920's. Madison Avenue Bridge Center Pier Under Construction in September 1909, and Constructing New Guardrail in September 1934. City Island Bridge Concreting in 1912. University Heights Bridge Roadway Repair in 1923.

## BRIDGE INSPECTION EQUIPMENT LIST

Inspector Equipment	Inspection Team Equipment	Inspection Van Equipment
Boots-Knee High	5 Boro Map	Tool Chest
Dust Masks (Disposable)	Binoculars, Broom	Clip Boards
Safety Goggles	Digital Camera, Camera Card Reader	Flashlight (3 "D" Cell)
Hard Hat With Liner	Hand Compass	Fire Extinguisher & First Aid Kit
Rain Hat & Jacket	Screwdriver Set (Regular & Phillips)	3 Safety Flags
Work Gloves Long Cuff	Dye Penetrant Kit	Step Ladder 6' or 8'
Work Gloves Unlined & Unlined	Rotational Distance Meter	Traffic Regulation Barrels
Spring/Winter Jackets	Lantern D-Meter With Test block	10 Traffic Cones
Work Boots & Overalls	Marking Paint Spray	<b>Special Equipment for Inspection of Bridges Over Railroads</b>
Chipping Hammer	Retract Survey Rod 25	Third Rail Insulating Mat
Clip Boards	Portable Laser Distance Meter, Handheld Computer	<b>Put In Trucks By Highway Repairers When Needed</b>
Deceleration Lanyards	Thermometer, Spray Penetrating Oil	Generator
Flashlight (2 "D" Cell)	Cell Phone/Radio, Vernier Calipers	Oil For Generator
Safety Vest	Wrenches 12", Tool Pouch	Extension Ladder 32'
Level 9" (Magnetic)	Lumber Crayons, Spray Paint	Extension Ladder 24'
Tool Bags (24")	Awl, Calipers, Hacksaw	Extension Ladder 16'
Class III Body Harness	Hacksaw Blades (Extra), Paint Scraper	Shovel
Lanyards	Inspection Mirror, Level 24"	Push Broom
Bridge Inspection Manual (New York State)	Pliers 8", Vinyl Coated	Dust Pan & Sweep Broom
Technical Advisories For Inspection Manual	Plumb Bob, Pocket Knife	Bottled Water
Emergency Procedure Instructions	Ruler 25" or 30" (Metal)	Bolt Cutter
OSHA Approved Respirator & Filters	Ruler 100' (Fiberglass), Scraper Blades (Extra)	Flood Lights
Belt With Two Drop Forged D-Rings	Wire Brush, Folding Ruler 8'	Approved Safety Gasoline Can
Hard Hat Flashlight	Rope 5/8" With 100' Coil	Sledge Hammer (8 lbs.)
	Digital Angle Gauge	Extension Cord Winder
		
	Typical Simple Span With Superstructure, Abutment and Pier Elements. (Credit: Bojidar Yanev)	
Team Leader Thirugnanam Mohan Inspecting City Island Bridge. (Credit: Bojidar Yanev). Diver Checking Steel Sheeting at the Fresh Creek Cofferdam Pier 2 in June 2012.		Ed Koch - Queensboro Bridge Biennial Inspection in October 2012 - Tower 1, Looking West. Inspecting Bridge Over Dam at Clove Lake in May 2014 Using Small Boats and Scaffolding.

\*New York City Department of Transportation, Division of Bridges. *Inspections and Bridge Management Section Equipment Checklist*. 2006, Revised 11/15/10 and 12/31/13.

- Adeli, Hojjat, and Kim, Hongjin. *Wavelet-Based Vibration Control of Smart Buildings and Bridges*. Taylor & Francis, 2009.
- Åkesson, Björn. *Fatigue Life of Riveted Steel Bridges*. CRC Press, 2010.
- Åkesson, Björn (editor). *Plate Buckling in Bridges and Other Structures*. Taylor & Francis, 2007.
- Åkesson, Björn (editor). *Understanding Bridge Collapses: From the Horizon of the Structural Engineer*. Taylor & Francis, 2008.
- Ansari, Farhad (editor). *Sensing Issues in Civil Structural Health Monitoring*. Springer, 2010.
- Azizinamini, Atorod, Yakel, Aaron, Abdelrahman, Magdy, (editors), and United Engineering Foundation. *High Performance Materials in Bridges: Proceedings of the International Conference*. American Society of Civil Engineers, August 2003.
- Barker, Richard M., and Puckett, Jay A. *Design of Highway Bridges: An LRFD Approach*. John Wiley & Sons, 3rd edition, 2013.
- Beard, Jeffrey L., Wundram, Edward C., and Loulakis, Michael C. *Design-Build: Planning Through Development*. McGraw-Hill Professional, 2001.
- Benaim, Robert. *The Design of Concrete Bridges*. Taylor & Francis, 2007.
- Biondini, Fabio, and Frangopol, Dan M. (editors). *Bridge Maintenance, Safety, Management, Resilience and Sustainability: Proceedings of the Sixth International IABMAS Conference, Stresa, Lake Maggiore, Italy*. CRC Press, 2012.
- Birnstiel, Charles, Foerster, George, and Bowden, William. *Movable Bridge Design*. ICE Publishing, 2015.
- Blakstad, Lucy (editor). *Bridge: The Architecture of Connection*. Birkhauser Verlag, 2002.
- Blockley, David. *Bridges: The Science and Art of the World's Most Inspiring Structures*. Oxford University Press, USA, 2010.
- Branco, Fernando A., and de Brito, Jorge. *Handbook of Concrete Bridge Management*. American Society of Civil Engineers, 2003.
- Brown, David J. *Bridges: Three Thousand Years of Defying Nature*. Motorbooks International, October 2001.
- Burke Jr., Martin P. *Integral and Semi-Integral Bridges*. Wiley-Blackwell, 2009.
- Chatterjee, Suhken. *Design of Modern Steel Bridges*. Blackwell Science Inc., 2nd edition, 2003.
- Chen, Airong, Frangopol, Dan M., and Ruan, Xin (editors). *Bridge Maintenance, Safety, Management and Life Extension – IABMAS'14: Proceedings of the Seventh International Conference on Bridge Maintenance, Safety and Management, Shanghai, China, 7-11, 2014*. CRC Press, 2014.
- Chen, Wai-Fah, and Duan, Lian (editors). *Bridge Engineering Handbook, Five Volume Set: Fundamentals, Superstructure Design, Substructure Design, Seismic Design, and Construction and Maintenance*. CRC Press, 2nd edition, 2014.
- Cho, Yoon-Ho, Tayabi, Shiraz D., Won, Moon C., and Yuan, Jianbo (editors). *New Technologies in Construction and Rehabilitation of Portland Cement Concrete Pavement and Bridge Deck Pavement (GSP 196)*. (Proceedings of the GeoHunan International Conference: Challenges and Recent Advances in Pavement Technologies and Transportation Geotechnics). American Society of Civil Engineers, 2009.
- Chotickai, Piya. *Fatigue Life of Steel Bridges: Structural Evaluation and Reliability-Based Analysis Method*. VDM Verlag, 2009.
- Collings, David. *Steel Concrete Composite Bridges*. Thomas Telford Ltd., 2005.
- Construction Institute Committee on Specification. *Preparing Requests for Proposals and Specifications for Design-Build Projects*. American Society of Civil Engineers, 2008.
- Cossons, Neil, and Trinder, Barrie. *Iron Bridge: Symbol of the Industrial Revolution*. Phillimore & Company, Limited, 2002.
- Cruz, Paulo J. S., Frangopol, Da M., and Neves, Luis C. (editors). *Advances in Bridge Maintenance, Safety Management and Lifecycle Performance*. Taylor & Francis, 2006. (With CD-ROM).
- Cunha, Alvaro (editor). *Topics in Dynamics of Bridges, Volume 3: Proceedings of the 31st IMAC, A Conference on Structural Dynamics, 2013 (Conference Proceedings of the Society for Experimental Mechanics Series)*. Springer, 2013.
- Datta, T. K. *Seismic Analysis of Structures*. Wiley, 2010.
- Dawe, Peter. *Traffic Loading on Highway Bridges*. American Society of Civil Engineers (Thomas Telford, Ltd.), 2004.
- Day, Robert W. *Geotechnical Earthquake Engineering Handbook*. McGraw-Hill, 2001.
- Deng, Linzhong. *Artificial Intelligence Techniques for Bridge Reliability Assessment*. VDM Verlag, 2009.
- Denison, Edward, and Stewart, Ian. *How to Read Bridges: A Crash Course In Engineering and Architecture*. Rizzoli, 2012.
- Denny, Mark. *Super Structures: The Science of Bridges, Buildings, Dams, and Other Feats of Engineering*. The Johns Hopkins University Press, 2010.
- Eggert, Helmut, and Kauschke, Wolfgang. *Structural Bearings*. John Wiley & Sons, 2003.
- Erdem, Arda. *Seismic Design of Bridges*. LAP Lambert Academic Publishing, 2010.
- Ettouney, Mohammed, and Alampalli, Sreenivas. *Infrastructure Health in Civil Engineering (Two-Volume Set): Theory and Components, & Applications and Management*. CRC Press, 2011.
- Frangopol, Dan M., Sause, Richard, and Kusko, Chad (editors). *Bridge Maintenance, Safety and Management - IABMAS'10: Proceedings of the Fifth International IABMAS Conference, Philadelphia, USA, 11-15 July 2010*. CRC Press, 2010.
- Fu, Chung C., and Wang, Shuqing. *Computational Analysis and Design of Bridge Structures*. CRC Press, 2014.
- Galloway, Patricia D. *The 21st-Century Engineer: A Proposal for Engineering Education Reform*. American Society of Civil Engineers, 2007.
- Gao, Lubin. *Load Rating Highway Bridges: In Accordance with Load and Resistance Factor Rating Method*. Outskirts Press, 2013.
- Ger, Jeffrey, and Cheng, Franklin Y. *Seismic Design Aids for Nonlinear Pushover Analysis of Reinforced Concrete and Steel Bridges*. CRC Press, 2011.
- Gere, James M. *Mechanics of Materials*. Brooks/Cole Publishing, 5th edition, 2000.
- Ghali, A., Favre, R., and Elbady, M. *Concrete Structures: Stresses and Deformations: Analysis and Design for Sustainability*. Spon, 4th edition, 2011.
- Ghosh, Uptal K. (editor). *Design and Construction of Steel Bridges*. Taylor & Francis, 2007.
- Ghosh, Uptal K. *Repair & Rehabilitation of Steel Bridges*. Balkema Publishers, 2000.
- Gimsing, Niels J., and Georgakis, Christos T. *Cable Supported Bridges: Concept and Design*. Wiley, 3rd edition, 2012.

## SUGGESTED READING

- Gohler, Bernhard, and Pearson, Brian. *Incrementally Launched Bridges: Design and Construction*. John Wiley & Sons, 2000.
- Gonzalez, Arturo. *Development of a Bridge Weigh-In-Motion System: A technology to convert the bridge response to the passage of traffic into data on vehicle configurations, speeds, times of travel and weights*. LAP Lambert Academic Publishing, 2010.
- Gottemoeller, Frederick. *Bridgescape: The Art of Designing Bridges*. John Wiley & Sons, 2<sup>nd</sup> edition, 2004.
- Gransberg, Douglas D., Koch, James E., and Molennar, Keith R. *Preparing for Design-Build Projects: A Primer for Owners, Engineers, and Contractors*. American Society of Civil Engineers, 2006.
- Grigg, Neil S., Criswell, Marvin E., Fontane, Darrell G., and Siller, Thom. *Civil Engineering Practice in the Twenty-First Century: Knowledge and Skills for Design and Management*. American Society of Civil Engineers, 2001.
- Hewson, Nigel R. *Prestressed Concrete Bridges*. ICE Publishing, 2<sup>nd</sup> edition, 2011.
- Idelberger, Klaus, and Wilharm, Linda (Translator). *The World of Footbridges: From the Utilitarian to the Spectacular*. Wiley-VCH, 2011.
- Imhof, Daniel. *Risk Assessment of Existing Bridge Structures: Evaluation of the Risk of Structural Collapse*. VDM Verlag, 2008.
- Jaffe, Rochelle C. *Masonry Instant Answers (Instant Answer Series)*. McGraw-Hill Professional, 2003.
- Jurado, J. A., Hernandez, S., Nieto, F, and Mosquera, A. *Bridge Aeroelasticity: Sensitivity Analysis and Optimum Design (High Performance Structures and Materials)*. WIT Press / Computational Mechanics, 2011.
- Kappos, Andreas J. (editor). *Dynamic Loading and Design of Structures*. E & F N Spon, 2001.
- Kappos, Andreas J., Saidi, M. Said, Aydinoglu, M. Nuray, and Isakovic, Tatjana. (editors). *Seismic Design and Assessment of Bridges: Inelastic Methods of Analysis and Case Studies (Geotechnical, Geological and Earthquake Engineering)*. Springer, 2012.
- Kardon, Joshua A. (editor). *Guidelines for Forensic Engineering Practice*. American Society of Civil Engineers, 2<sup>nd</sup> edition, 2012.
- Kawada, Tadaki, Ohashi, Harukazu (Translator), Scott, Richard (Editor). *History of the Modern Suspension Bridge: Solving the Dilemma between Economy and Stiffness*. American Society of Civil Engineers, 2010.
- Kennedy-Reid, Ian L. *Concrete Bridge Strengthening and Repair*. Thomas Telford Ltd., 2009.
- Khan, Mohiuddin A. *Bridge and Highway Structure Rehabilitation and Repair*. McGraw-Hill Professional, 2010.
- Khan, Mohiuddin A. *Accelerated Bridge Construction: Best Practices and Techniques*. Butterworth-Heinemann, 2014.
- Khan, Mohiuddin A. *Flood Scour for Bridges and Highways: Prevention and Control of Soil Erosion*. McGraw-Hill Professional, 2014.
- Kim, Jai B., Kim, Robert H., Eberle, Jonathan, with Mante, Dave M., and Weaver, Eric J. *Simplified LRFD Bridge Design*. CRC Press, 2013.
- Kim, Yail Jimmy (editor). *Advanced Composites in Bridge Construction and Repair (Woodhead Publishing Series in Civil and Structural Engineering)*. Woodhead Publishing, 2014.
- Klein, Lawrence A. *Sensor Technologies and Data Requirements for ITS Applications*. Artech House, 2001.
- Koglin, Terry. *Movable Bridge Engineering*. John Wiley & Sons, 2004.
- Koh, Hyun-Moo, and Frangopol, Dan M. (editors). *Bridge Maintenance, Safety, Management, Health Monitoring and Informatics: Proceedings of the Fourth International Conference, Seoul, Korea, 13-17 July 2008*. Taylor & Francis, 2008.
- Kratkey, Richard J. (Editor). *Assessment of Performance of Vital Long-Span Bridges in the United States*. American Society of Civil Engineers, 2003.
- Lee, George C., Sternberg, Ernest, and Pierro, David C. (illustrator). *Bridges: Their Engineering and Planning*. SUNY Press, 2015.
- Leitch, Kenneth. *Close-Range Photogrammetric Measurement of Bridge Deformations: A Non-Contact Analysis Method*. LAP Lambert Academic Publishing, 2010.
- LePatner, Barry B. *Too Big to Fall: America's Failing Infrastructure and the Way Forward*. Foster Publishing, 2010.
- Mahmoud, Khaled M. (editor). *Innovations in Bridge Engineering Technology: Selected Papers, 3<sup>rd</sup> NYC Bridge Conference, 27-28 August 2007*. CRC, 2007.
- Mahmoud, Khaled M. (editor). *Safety and Reliability of Bridge Structures: Selected Papers, 5<sup>th</sup> New York City Bridge Conference*. CRC, 2009.
- Mahmoud, Khaled M. (editor). *Modern Techniques in Bridge Engineering: Proceedings of 6<sup>th</sup> New York City Bridge Conference, 25-26 July 2011*. CRC, 2011.
- Malhotra, V. M., and Carino, N. J. (editors). *Handbook on Nondestructive Testing of Concrete*. Auerbach Publishing, 2<sup>nd</sup> edition, 2004.
- Measures, Raymond M. *Structural Monitoring With Fiber Optic Technology*. Academic Press, 2001.
- Mort, Michael. *A Bridge Worth Saving: A Community Guide to Historic Bridge Preservation*. Michigan State University Press, 2008.
- Moutassem, Fayez. *High Strength Concrete Prestressed Bridge Girders: Evaluation and Modification of the Allowable Stresses*. VDM Verlag, 2010.
- O'Brien, Eugene, Keogh, Damien, and O'Connor, Alan. *Bridge Deck Analysis*. CRC Press, 2<sup>nd</sup> edition, 2014.
- O'Connor, Colin O., and Shaw, Peter A. *Bridge Loads*. Routledge, 2000.
- Outerbridge, Graeme (photographer), and Outerbridge, David. *Bridges*. Harry N Abrams, 1989.
- Paipelis, Alkiviadis S., Matikas, Theodore E., Aggelis, Dimitrios G., and Van Hemelrijck, Danny (editors). *Emerging Technologies in Non-Destructive Testing V: Fifth Conference on Emerging Technologies in Non-Destructive Testing (Ioannina, Greece, 19-21 September 2011)*. CRC Press, 2012.
- Parke, G. A. R., and Disney, P. (editors) *Bridge Management 5: Fifth International Conference on Bridge Management, 2005*. Thomas Telford, Ltd., 2005.
- Parmley, Robert O. *Civil Engineer's Illustrated Sourcebook*. McGraw-Hill Professional, 2003.
- Pearce, Martin, and Jobson, R. *Bridge Builders*. John Wiley & Sons, 2002.
- Petroski, Henry. *Pushing the Limits: New Adventures in Engineering*. Vintage, 2005.
- Prose, Dirk, and van Gelder, Pieter. *Safety of Historical Stone Arch Bridges*. Springer, 2009.
- Proulx, Tom (editor). *Dynamics of Bridges, Volume 5: Proceedings of the 28th IMAC, A Conference on Structural Dynamics, 2010 (Conference Proceedings of the Society for Experimental Mechanics Series)*. Springer, 2011.

- Raina, V. K. *Raina's Concrete Bridge Practice Construction, Maintenance and Rehabilitation*. Shroff Publishers and Distributors Pvt. Ltd., 2nd Edition, 2010.
- Rasenberger, Jim. *High Steel: The Daring Men Who Built The World's Greatest Skyline, 1881 to The Present*. HarperCollinsUS, 2010.
- Ratay, Robert T. (editor). *Forensic Structural Engineering Handbook*. McGraw-Hill Professional, 2000.
- Ratay, Robert T. *Structural Condition Assessment*. John Wiley & Sons, 2005.
- Reece, Martin B. *Strengthening Historic Covered Bridges to Carry Modern Traffic*. Nova Science Publishers, 2009.
- Richardson, Mark. *Fundamentals of Durable Reinforced Concrete*. E & F N Spon, 2002.
- Rosignoli, Marco. *Bridge Construction Equipment*. ICE Publishing, 2013.
- Rosignoli, Marco. *Bridge Launching*. ICE Publishing, 2nd edition, 2014.
- Ruddock, Ted (editor). *Masonry Bridges, Viaducts and Aqueducts*. Ashgate Publishing Company, 2000.
- Russell, Jeffrey S. (editor). *Perspectives in Civil Engineering: Commemorating the 150th Anniversary of the American Society of Civil Engineers*. American Society of Civil Engineers, 2003.
- Ryall, Michael J. *Bridge Management*. Butterworth-Heinemann, 2nd edition, 2009.
- Ryall, Michael J., Parke, G. A. R., and Harding, J. E. *Manual of Bridge Engineering*. American Society of Civil Engineers (Thomas Telford, Ltd.), 2000.
- Ryall, M. J., Parke, G. A. R., and Harding, J. E. (editors). *Bridge Management Four: Inspection, Maintenance, Assessment, and Repair (Proceedings of the Fourth International Conference on Bridge Management)*. American Society of Civil Engineers (Thomas Telford, Ltd.), 2000.
- Scheer, Joachim, Wilharm, Linda (translator), and Menn, Christian (forward). *Failed Bridges: Case Studies, Causes and Consequences*. Wiley-VCH, 2010.
- Simiu, Emil, and Miyata, Toshio. *Design of Buildings and Bridges for Wind: A Practical Guide for ASCE-7 Standard Users and Designers of Special Structures*. John Wiley & Sons, 2006.
- Strasky, Jiri. *Stress Ribbon and Cable-supported Pedestrian Bridges*. ICE Publishing, 2nd edition, 2011.
- Strømmen, Einar. *Theory of Bridge Aerodynamics*. Springer, 2nd edition, 2010.
- Sussman, Joseph M. *Perspectives on Intelligent Transportation Systems (ITS)*. Plenum US, 2005.
- Taly, Narendra. *Highway Bridge Superstructure Engineering: LRFD Approaches to Design and Analysis*. CRC Press, 2014.
- Tilly, Graham, Gifford, and Partners. *Bridge Conservation: A Guide to Good Practice*. Taylor & Francis, 2002.
- Tonias, Demetrios E., Garrabrant, Richard, and Chen, Stuart. *Bridge Engineering: Design, Rehabilitation, and Maintenance of Modern Highway Bridges*. McGraw-Hill Professional, 2nd edition, 2004.
- Transport Association of Canada. *Guide to Bridge Hydraulics*. American Society of Civil Engineers (Thomas Telford Ltd), 2nd edition, 2004.
- Troyano, Leonardo Fernyyndez. *Bridge Engineering: A Global Perspective*. American Society of Civil Engineers (Thomas Telford, Ltd.), 2004.
- Unsworth, John F. *Design of Modern Steel Railway Bridges*. CRC Press, 2010.
- Wenzel, Helmut. *Health Monitoring of Bridges*. Wiley, 2009.
- Whitney, Charles S. *Bridges of the World: Their Design and Construction*. Dover Publications, 2003.
- Williams, Alan. *Civil & Structural Engineering: Seismic Design of Buildings & Bridges*. Kaplan, 5th edition, 2005.
- Xu, You-Lin. *Wind Effects on Cable-Supported Bridges*. Wiley, 2013.
- Xu, You Lin, and Xia, Yong. *Structural Health Monitoring of Long Span Suspension Bridges*. CRC Press, 2012.
- Yanev, Bojidar. *Bridge Management*. Wiley, 2007. (Also available in Chinese and Japanese editions.)
- Yanev, Bojidar. *Comparing Bridge Condition Evaluations with Life-Cycle Expenditures*. Chapter 22 in Frangopol, Dan M., and Tsompanakis, Yiannis (editors). *Maintenance and Safety of Aging Infrastructure: Structures And Infrastructures Book Series, Volume 10*. CRC Press, 2014.
- Yeomans, David. *How Structures Work: Design and Behaviour from Bridges to Buildings*. John Wiley & Sons, 2009.
- Zhao, Jim J., and Tonias, Demetrios E. *Bridge Engineering: Design, Rehabilitation, and Maintenance of Modern Highway Bridges*. McGraw-Hill Professional, 3rd edition, 2012.
- New York City Bridge Conference: A Special Issue of the Journal of Bridge Engineering: Proceedings of the 1st New York City Bridge Conference*. American Society of Civil Engineers, 2001.

### History and Images

- Adeli, Hojjat. *Historic Bridges: Evaluation, Preservation, and Management*. CRC Press, 2012.
- Baus, Ursula, Schlaich, Mike, Dechau, Wilfried (photographer), Rieser, C. (translator), and Toovey, Richard (translator). *Footbridges*. Birkhäuser Basel, 2007.
- Beck, Haig, and Cooper, Jackie. *Kurilpa Bridge: Brisbane's New Bridge*. The Images Publishing Group, 2012.
- Cleary, Richard L. *Bridges*. (Norton/Library of Congress Visual Sourcebooks in Architecture, Design & Engineering.) W. W. Norton, 2007.
- Cooper, Alan. *Bridges, Law and Power in Medieval England, 700-1400*. Boydell Press, 2006.
- Cortright, Robert S. (photographer), and Cortright Neff, Jeane (editor). *Bridging the World*. Bridge Ink, 2003.
- Cruickshank, Dan. *Dan Cruickshank's Bridges: Heroic Designs That Changed the World*. Collins, 2010.
- Dyble, Louise N. *Paying the Toll: Local Power, Regional Politics, and the Golden Gate Bridge (American Business, Politics, and Society)*. University of Pennsylvania Press, 2009.
- Frampton, Kenneth, Tischhauser, Anthony, and Webster, Anthony C. (editors). *Calatrava Bridges*. Birkhauser (Architectural), 3rd edition, 2004.
- Fujino, Yozo, Kimura, Kichiro, and Tanaka, Hiroshi. *Wind Resistant Design of Bridges in Japan: Developments and Practices*. Springer, 2012.
- Fuller, Robert G., Lang, Charles R., and Lang, Roberta H., (editors). *Twin Views of the Tacoma Narrows Bridge Collapse*. American Association of Physics Teachers, 2000.

- Graf, Bernhard. *Bridges That Changed the World*. Prestel USA, 2002.
- Guth, David W. *Bridging the Chesapeake: A 'Fool Idea' That Unified Maryland*. Old Line Publishing LLC, 2013.
- Hadlow, Robert W. *Elegant Arches, Soaring Spans: C. B. McCullough, Oregon's Master Bridge Builder*. Oregon State University Press, 2001.
- Harrison, David. *The Bridges of Medieval England: Transport and Society 400-1800*. (Oxford Historical Monographs). Oxford University Press, 2007.
- Jamieson, Eric. *Tragedy at Second Narrows: The Story of the Ironworkers Memorial Bridge*. Harbour Publishing Company, 2008.
- Kemp, Emory L. (editor). *American Bridge Patents: The First Century, 1790-1890*. West Virginia University Press, 2005.
- Knapp, Ronald G., and Ong, A. Chester (photographer). *Chinese Bridges: Living Architecture From China's Past*. Tuttle Publishing, 2008.
- MacDonald, Donald, and Nadel, Ira. *Bay Bridge: History and Design of a New Icon*. Chronicle Books, 2013.
- Mackay, Sheila. *The Forth Bridge: A Picture History*. Birlinn Ltd., 2011.
- Miller, Terry E., Knapp, Ronald G., and Chester Ong, A. (photographer). *America's Covered Bridges: Practical Crossings - Nostalgic Icons*. Tuttle Publishing, 2014.
- Nielsen, Stuart S., and Olson, Kimball. *The New Keosauqua Bridge - Construction of the New Bridge in Keosauqua, Van Buren County, Iowa*. NieKo, 1<sup>st</sup> edition, 2013.
- Pascoe, Michael. *150 Years of Clifton Suspension Bridge: A Photographic History*. The History Press, 2014.
- Robinson, John V. *Building the Benicia-Martinez Bridge*. Carquinez Press; 2007.
- Ruddock, Ted. *Arch Bridges and their Builders 1735-1835*. Cambridge University Press, 2008.
- Scheer, Joachim, and Wilharm, Linda (translator). *Failed Bridges: Case Studies, Causes and Consequences*. Wiley, John & Sons, Incorporated, 2010.
- Scott, R. *In the Wake of Tacoma : Suspension Bridges and the Quest for Aerodynamic Stability*. American Society of Civil Engineers, 2001.
- Solomon, Brian. *North American Railroad Bridges*. Voyageur Press, 1<sup>st</sup> edition, 2008.
- Sweetman, John. *The Artist and the Bridge: 1700-1920*. Ashgate Publishing, Limited, 2000.
- Thienel, Phillip M. *Mr. Lincoln's Bridge Builders: The Right Hand of American Genius*. White Mane Publishing Company, Incorporated, 2000.
- Van den Berg, Christa, and Nijenhuis, Gerhard. *Bridging the Dutch Landscape: Design Guide for Bridges*. Bis Publishers, 2009.
- Van Uffelen, Chris. *Link III: Masterpieces of Bridge Design*. Braun Publishing, 2014.
- Watson, Wilbur J. *Great Bridges: From Ancient Times to the Twentieth Century*. Dover Publications, 2006.
- Wells, Matthew, and Pearman, Hugh (introduction). *30 Bridges*. Watson-Guption Publications, 2002.
- Wisely, William H., Fairweather, Virginia, and Caballeros, Harold A. *The American Civil Engineer 1852-2002: The History, Traditions, and Development of the American Society of Civil Engineers*. American Society of Civil Engineers, 2002.

### New York City Bridges

- Abrahams, Michael J. *Seismic Retrofit of Two New York City Bridges*. Proceedings of Structures Congress 2001. . American Society of Civil Engineers.
- Agrawal, A. K., Yi, Z., Alampalli, S., Ettouney, M., King, L., Hui, K., and Patel, M. *Remote Corrosion Monitoring Systems for Highway Bridges*. Practice Periodical on Structural Design and Construction, Volume 14, Issue 4, November 2009.
- Arzoumanidis, Serafim G, Savage, Itunumi, and Zhang, Jun. *In-Depth Seismic Investigation of the Williamsburg Bridge: A Major East-Coast Suspension Bridge*. Proceedings of Structures Congress 2000. American Society of Civil Engineers.
- Ashraf, Syed, Jayakumaran S., and Chen, Lihui. *Case History: Pile Driving and Vibration Monitoring for Avenue P Bridge in Brooklyn, New York*. Proceedings of the International Deep Foundations Congress 2002.
- Barbas, Jamey A. *Saving the Williamsburg Bridge*. Civil Engineering, Volume 70, Issue 10, 2000.
- Barbas, Jamey A., and Matusewitch, Peter. *Reconstruction of the Williamsburg Bridge: Transition to a Modern Structure*. Proceedings of the Third National Congress on Civil Engineering History and Heritage. American Society of Civil Engineers, 2007.
- Barelli, Michael, White, Joshua, and Billington, and David P. *History and Aesthetics of the Bronx-Whitestone Bridge*. Journal of Bridge Engineering, Volume 11, Issue 2, March 2006.
- Bashir, Tariq M., McCotter, Michael, Haight, Roger Q., and Dinmore, Gary M. *Alexander Hamilton Bridge – Construction Challenges and Solutions*. Transportation Research Board Annual Meeting, 2014.
- Begonja, K. *The Belt Parkway Bridge Replacement*. Concrete Engineering International, Volume 8, Number 4, 2004.
- Betti, Raimondo, Khazem, Dyab, Carlos, Mark, Gostautas, Richard, and Virman, Y. Paul. *Corrosion Monitoring Research for City of New York Bridges*. U.S. Department of Transportation Federal Highway Administration. FHWA Publication No.: FHWA-HRT-14-023, May 2014.
- Brown, Jeff L. *The Bridges of Central Park*. Civil Engineering, Volume 83, Issue 2, 2013.
- Buyson, Marco, and Shams, Mohammad. *A Yankee Clip: Bronx Bridge Project Packs Plenty of Speed, Precision*. Roads & Bridges, Volume 48, Number 11, November 2010.
- Coates, Andrew, Yegian, Mishac, Kishore, Kamal, Jin, Sajjan Jain, Patel, Jay, Pizzi, John, Connolly, Paul, and Yin, Beile. *Foundation Retrofit of the Third Avenue Bridge in New York*. Proceedings of GeoTrans 2004. American Society of Civil Engineers.
- Coates, Andrew C., Bluni, Sean A., Connolly, Paul J., Patel, Jay A., and Chandiramani, Balram. *Swinging into Action: The Recently Completed Replacement of New York City's 108-Year-Old Third Avenue Bridge Required Complex Staged Construction and the Use of a Temporary Structure to Limit Disruptions to Bridge and Marine Traffic*. Civil Engineering, Volume 75, Issue 12, 2005.
- Coates, Andrew C., Bluni, Sean A., and Connolly, Paul J. *Replacement of the Third Avenue Bridge over the Harlem River*. Proceedings of the 2005 Structures Congress and the 2005 Forensic Engineering Symposium, American Society of Civil Engineers.
- Csogi, Ralph D., *Reconstructing the Manhattan Bridge*. Civil Engineering, Volume 85, Issue 1, 2015.
- Dubin, Earl E., and Yanev, Bojidar S. *Managing the East River Bridges in New York City*. Federal Highway Administration, 2012.

Fanjiang, G. N., Gajer, R. B., and Ye, Q. *Seismic Evaluation and Retrofit of the Manhattan Bridge*. Proceedings of Structures Congress 2001. American Society of Civil Engineers.

Greater Astoria Historical Society, and Roosevelt Island Historical Society. *Images of America: The Queensboro Bridge*. Arcadia Publishing, 2008.



Brooklyn Bridge in 2009. (Credit: Jagtar Khinda)  
Ed Koch Queensboro Bridge in 2006. (Credit: Russell Holcomb)

Griggs, Jr., Francis E. *Bridge Across the Hudson*. Journal of Bridge Engineering, Volume 14, Issue 5, September 2009.

Griggs, Jr., Francis E. *John A. Roebling and His East River Bridge Proposals 1847 — 1869*. John A. Roebling: A Bicentennial Celebration of His Birth 1806-2006: Proceedings of the Conference. American Society of Civil Engineers, 2007.

Griggs, Jr., Francis E. *The Manhattan Bridge: A Clash of Titans*. Journal of Professional Issues in Engineering Education and Practice, Volume 134, Issue 3, 2008.

Haight, Roger, Chang, Sherry, and Kushmock, Robert. *Orthotropic Deck Rehabilitation at the Throgs Neck Bridge*. Proceedings of the 2005 Structures Congress and the 2005 Forensic Engineering Symposium.

Haw, Richard. *The Brooklyn Bridge: A Cultural History*. Rutgers University Press, 2005.

Haw, Richard. *Art of the Brooklyn Bridge: A Visual History*. Routledge, 2008.

Hay, Thomas R. *Bridge Cable Inspection with Long Range Ultrasound*. NCHRP-IDEA Program Project Final Report, 2012.

Hecox, Doug, Guterman, Josh. *Working Work of Art: At 130, The Brooklyn Bridge Still Does the Job it Was Built For*. Better Roads, Volume 83, Issue 5, May 2013.

Hill, David. *Suspension System of New York's Manhattan Bridge Gets Long-Awaited Update*. Civil Engineering, Volume 83, Issue 11, 2013.

Holman, Terence P., Tuozolo, Thomas J., Davis, Kyle, and Pastore, Joseph A. *Micropile Construction for the Willis Avenue Bridge Replacement – Geologic Challenges Meet Urban Construction Logistics*. Proceedings of the 28<sup>th</sup> Annual International Bridge Conference, 2011.

Jayakumaran, S., Bergmann, Michael, Ashraf, Syed, and Norrish, Charles. *Case Study: A Jointless Structure to Replace the Belt Parkway Bridge Over Ocean Parkway*. Proceedings of Integral Abutment and Jointless Bridges (IAJB 2005), 2005.

Jones, Jenny. *NYC Pedestrian Bridge Blends Rustic Simplicity With Urban Modernism*. Civil Engineering, Volume 81, Issue 7, 2011.

Khinda, Jagtar S. *The New Performance Based Seismic Design Criteria for New York City*. Proceedings of Structures Congress 2013: Bridging Your Passion with Your Profession. American Society of Civil Engineers

Krstic, Vedrana, Mankbadi, Raymond, and Ramakrishna, Aravinda. *Willis Avenue Swing Bridge: Design and Construction of Drilled Shaft Foundations*. Selected Papers of the 2009 International Foundation Congress and Equipment Expo, American Society of Civil Engineers, 2009.

Lai, Chee K., and Hubbard, Stephen. *Prestressed Concrete Box Beams with Curved Soffits*. Proceedings of Structures Congress 2000.

Levy, Matthys. *Unusual Arrangement: A New Form of Cable-Stayed Bridge Has Been Developed to Join Two Parts of the Campus of New York City's Rockefeller University*. Civil Engineering, Volume 75, Issue 11, 2005

Levy, Matthys. *Rockefeller University Bridge and Plaza*. Metropolis & Beyond: Proceedings of the 2005 Structures Congress and the 2005 Forensic Engineering Symposium. American Society of Civil Engineers, 2005..

Mahmoud, Khaled. *Accessible and Cost-Effective Approach for Seismic Retrofit of Highway Bridges*. Proceedings of Structures Congress 2001. American Society of Civil Engineers.

Manbeck, John. *Historic Photos of the Brooklyn Bridge*. Turner Publishing Company, 2009.

Mayer, Lorenzo, Yanev, Bojidar S., Olson, Larry D., and Smyth, Andrew W. *Monitoring of Manhattan Bridge for Vertical and Torsional Performance with GPS and Interferometric Radar Systems*. Transportation Research Board 89<sup>th</sup> Annual Meeting Compendium of Papers DVD, 2010.

Metals in Construction, Fall 2004, Pages 48 – 51. *Steel Hits Home Run in Macombs Dam Bridge Rehabilitation*.

Metals in Construction, Fall 2005, Pages 26 – 29. *Third Avenue Bridge: Steel Bridge Barges in to Replace Its Predecessor*.

Metals in Construction, Spring 2007, Pages 36 – 41. *Williamsburg Bridge Rehabilitation Contract 8: 100-Year-Old Steel Bridge Ready For 100 Years More*.

Metals in Construction, Spring 2008, Pages 38 – 43. *Manhattan Bridge Rehabilitation: Steel is the East River Workhorse*.

Metals in Construction, Spring 2012, Pages 36 – 41. *Paerdegat Basin Bridge*.

Mumford, Jason L. *Planning the Brooklyn Bridge: John A. Roebling and 19th Century Project Development*. John A. Roebling: A Bicentennial Celebration of His Birth 1806-2006: Proceedings of the Conference. American Society of Civil Engineers, 2007.

Nikolaou, Sissy, Mylonakis, George, and Edinger, Peter. *Evaluation of Site Factors for Seismic Bridge Design in New York City Area*. Journal of Bridge Engineering, Volume 6, Issue 6, November/December 2001.

Pantoli, E., Vincenzi, L., Savoia, M., and Testa, R. *The Effect of Local Vibrations on Fatigue in Old Steel Riveted Bridges: A Case Study, the Manhattan Bridge*. Proceedings of the 8<sup>th</sup> International Conference on Structural Dynamics, EURODYN 2011.

Puri, Satinder P. S. *Aesthetics of Central Park's Cast Iron Bridges*. Proceedings of the 2006 Structures Congress.

Rastorfer, Darl. *Six Bridges: The Legacy of Othmar H. Ammann*. Yale University Press, 2000.



## SUGGESTED READING

Reid, Robert L. *Security-Related Traffic Changes on George Washington Bridge Accelerated Structural Cracking*. Civil Engineering, Volume 81, Issue 12, 2011.



Gapstow Bridge (East 62<sup>nd</sup> Pedestrian Bridge) During the Exhibition *The Gates, Project for Central Park, 1979-2005*. (Credit: Russell Holcomb) Center Drive Bridge (Playmates Arch) in 2008. West 62<sup>nd</sup> Pedestrian Bridge (Pinebank Arch). West 77<sup>th</sup> Street Pedestrian Bridge (Ladies Pond Bridge). East 77<sup>th</sup> Street Pedestrian Bridge (Glade Arch) in 2010. Greywacke Arch (East Drive Bridge Opposite East 80<sup>th</sup> Street) in 2011.

Reier, Sharon. *The Bridges of New York*. Dover Publications, Incorporated, 2000.

Rockland, Michael A. *The George Washington Bridge: Poetry in Steel*. Rutgers University Press, 2008.

Rosenthal, Andrea, and Scozzari, Samuel. *Modern Delivery of Construction Management Services with Emphasis on Environmental Risk Management for Projects in Marine and Tidal Areas*. Proceedings of the Eleventh Triennial International Conference. American Society of Civil Engineers, 2007.

Sayenga, Donald (editor). *Washington Roebling's Father: A Memoir of John A. Roebling*. American Society of Civil Engineers, 2008.

Schmidt, J. C. *The 2006 Rope Access Inspection of the Brooklyn Bridge Towers: A New View of an Old Bridge*. (Proceedings of the 4<sup>th</sup> New York City Bridge Conference). Taylor & Francis/Balkema, 2007.

Schultz, Allison R., and Billington, David P. *History and Aesthetics of the East River Bridges*. John A. Roebling: A Bicentennial Celebration of His Birth 1806-2006: Proceedings of the Conference. American Society of Civil Engineers, 2007.

Sharif, Mo. *Protecting New York City's Bridge Assets*. Public Roads, Volume: 68, Issue 6, 2005.

Shi, Yuwei, Deodatis, George, and Betti, Raimondo. *Random Field-Based Approach for Strength Evaluation of Suspension Bridge Cables*. Journal of Structural Engineering, Volume 133, Issue 12, 2007.

Spiegler, Jennifer C., and Gaykowski, Paul M. *The Bridges of Central Park*. Arcadia Publishing, 2006.

Stamm, Rolan, Marcic, David M., and Drugge, H. Everett. *Seismic Evaluation and Retrofit Design of the Harlem River Lift Bridge*. Proceedings of Structures Congress 2001.

Sutherland, Cara. *Bridges of New York City (Portraits of America)*. Friedman/Fairfax Publishing, 2002.



Southern Boulevard, Madison Avenue, and Moshulu Parkway Bridges. (Credit: Russell Holcomb) 17<sup>th</sup> Avenue Pedestrian Bridge. (Credit: Peter Basic) Wards Island Pedestrian Bridge in October 2011. (Credit: Rafael Lopez) University Heights Bridge in July 2011. (Credit: Russell Holcomb)

Talebinejad, Iman, Fischer, Chad, and Ansari, Farhad. *A Hybrid Approach for Safety Assessment of the Double Span Masonry Vaults of the Brooklyn Bridge*. Journal of Civil Structural Health Monitoring, June 2011.

## SUGGESTED READING

Talebinejad, Iman, Fischer, Chad, Ansari, Farhad, and Yanev, Bojidar S. *Structural Health Monitoring of the Masonry Arch Approach Spans in Brooklyn Bridge*. Transportation Research Board 89<sup>th</sup> Annual Meeting Compendium of Papers DVD, 2010.

Talese, Gay, Davidson, Bruce (photographer), and Rethi, Lili (illustrator). *The Bridge: The Building of the Verrazano-Narrows Bridge*. Walker & Company, 2002.

Tsakopoulos, Paul A., and Fisher, John W. *Full-Scale Fatigue Tests of Steel Orthotropic Decks for the Williamsburg Bridge*. Journal of Bridge Engineering, Volume 8, Issue 5, September/October 2003.

Winpenny, Thomas R. *Manhattan Bridge: The Troubled Story of a New York Monument*. Moore, Hugh Historical Park & Museums, Incorporated, 2003.



Ed Koch Queensboro Bridge in 2009. (Credit: Bernard Ente) The Manhattan Bridge Brooklyn Plaza in 1916: The Statues Represent Manhattan and Brooklyn. Manhattan Bridge in 2009. (Credit: Bernard Ente) Brooklyn Bridge Flag in June 2011.

Yanev, Bojidar S. *Bridge Maintenance Life Cycle Cost Assessment*. Proceedings of First US-Japan Workshop on Life-Cycle Cost Analysis and Design of Civil Infrastructure Systems. American Society of Civil Engineers, 2000.

Yanev, Bojidar S. *Deck Joints: the Weak Link in Bridge Structures and Life-Cycles*. Transportation Research Board Annual Meeting, 2014.

Yanev, Bojidar S. *Joints: the Weak Link in Bridge Structures and Lifecycles*. Smart Structures and Systems, Volume 15, No. 3, 2015.

Yanev, Bojidar S. *Williamsburg Bridge-12 Years After*. Proceedings of Structures Congress 2001. American Society of Civil Engineers.

Yanev, Bojidar S., and Richards, George. *Bridge Maintenance in New York City: Network- and Project-Level Interaction*. Transportation Research Record: Journal of the Transportation Research Board, No. 2220, 2011.

Yanev, Bojidar S., and Richards, George A.C. *Designing Bridge Maintenance on the Network and Project Levels*. Structure and Infrastructure Engineering, Volume 9, Issue 4, 2013.

Yegian, M. K., Arzoumanidis, S., Kishore, K., Patel J., Jain, S. K., Strohmman, B. P., and Edwards, N. *Seismic Soil-Foundation Investigation of the Brooklyn Bridge*. Proceedings of the Geotechnical Earthquake Engineering and Soil Dynamics IV Congress, American Society of Civil Engineers, 2008.

Yegian, Mishac. K., Arzoumanidis, Serafim, Strohmman, Bryan P., Kishore, Kamal, and Patel, Jay. *Appraising the Brooklyn Bridge*. Civil Engineering, Volume 79, Issue 2, 2009.

### For Children

Aaseng, Nathan. *Construction: Building the Impossible*. Oliver Press, Incorporated, 2000.

Adkins, Jan (illustrator). *Bridges: From My Side to Yours*. Roaring Brook, 2002.

Baxter, Nicola. *Bridges*. Scholastic Library Publishing, 2000.

Harris, David W. *Truss Fun*. BaHa Enterprises, 2<sup>nd</sup> edition, 2004.

Landau, Elaine. *Bridges. (True Books: Buildings and Structures)*. Children's Press, 2000.

Levy, Matthys, and Panchyk, Richard. *Engineering the City: How Infrastructure Works - Projects and Principles for Beginners*. Chicago Review Press, 2000.

Macaulay, David. *Building Big*. Houghton Mifflin Company, 2000.

Manzano, Sonia, and Gibbons, Noelle S. (illustrator). *The Lowdown on the High Bridge: The Story of How New York City Got its Water*. Bronx Children's Museum, 2015.

Maxwell, Yolonda. *Famous Bridges of The World: Measuring Length, Weight, And Volume*. PowerKids Press, revised edition, 2005.

Nardo, Don. *Roman Roads and Aqueducts*. Gale Group, 2000.

Nelson, Robin. *From Cement to Bridge (Start to Finish)*. Lerner Publications, 2004. (Also available in a Spanish edition.)

Parker, Janice. *Science of Structures*. Weigl Publishers, Incorporated, 2001.

Richards, Julie. *Bridges*. Smart Apple Media, 2003.

Simon, Seymour. *Bridges (Seemore Readers)*. Chronicle Books, 2005. (Winner of the Oppenheim Toy Portfolio Best Book Award Gold Seal.)

Simon, Seymour, Fauteux, Nicole, and Cushman, Doug (illustrator). *Let's Try It Out with Towers and Bridges: Hands-On Early-Learning Activities*. Atheneum, 2003.

Squire, Ann O. *Extreme Bridges (True Books)*. Children's Press, 2014.

Stone, Lynn M. *Bridges*. Rourke Publishing, 2002.

Vanderwarker, Peter, and Keller, John (editor). *Big Dig: Reshaping an American City*. Little, Brown Children's Books, 2001.

Weitzman, David. *Skywalkers: Mohawk Ironworkers Build the City*. Flash Point, 2010.

Willard, Keith, and Richardson, Adele. *Bridges*. The Creative Company, 2000.

Wolny, Philip. *High Risk Construction Work: Life Building Skyscrapers, Bridges, and Tunnels*. (Extreme Career Series). The Rosen Publishing Group, 2008.

Zaunders, Bo, and Munro, Roxie (illustrator). *The Great Bridge-Building Contest*. Harry N. Abrams, 2004.

### Teaching Children About Bridges- Internet

- ABCD's Bridge Design Tips for Kids. <http://www.abcdpittsburgh.org/kids/kids.htm> (accessed August 18, 2009).
- American Institute of Steel Construction. *Student Steel Bridge Competition*. <http://www.aisc.org/content.aspx?id=780> (College level) (accessed August 18, 2009).
- ASCE. *Welcome to ASCEville*. <http://content.asce.org/asceville/index.html> (accessed November 30, 2009).
- Brenner, Brian, Gravel, Brian, and Carroll, Julia. *Buildable Bridge Models*. {The models are available for use for engineering outreach for grades K-12} Proceedings of the ASEE New England Section 2006 Annual Conference. <http://www.wpi.edu/News/Conf/ASEE/PDFs/1-e-brenner.pdf> (accessed August 22, 2014).
- Carroll, Douglas R. *Bridge Engineering for the Elementary Grades*. Department of Basic Engineering, University of Missouri-Rolla. [http://web.umar.edu/~dougc/bridge/Web\\_Instructions.htm](http://web.umar.edu/~dougc/bridge/Web_Instructions.htm) (accessed November 19, 2007).
- The Children's Museum of Memphis. *Build-A-Bridge Classroom Activities*. <http://www.cmom.com/wp-content/uploads/2013/10/Build-A-Bridge-Curriculum-Guide.pdf> (accessed August 22, 2014).
- Cooper, James D., and Munley, Eric. *Bridge Research: Leading The Way to The Future*. United States Department of Transportation - Federal Highway Administration - Turner Fairbanks Highway Research Center. <http://www.tfhrc.gov/pubrds/summer95/p95su23.htm> (accessed November 19, 2007).
- Cridlebaugh, Bruce S. *Bridge Basics - A Spotter's Guide to Bridge Design*. <http://pghbridges.com/basics.htm> (accessed November 19, 2008).
- DeMember, Don. Discovery School.com. 2007. *Bridges: Technology Lesson Plan (Grades 6 - 8)*. <http://school.discoveryeducation.com/lessonplans/programs/bridges/index.html> (accessed November 19, 2007).
- East Prairie School Bridge Building Unit. <http://www.eps.n-cook.k12.il.us/teched/bridge/bridge.htm> (accessed November 19, 2007).
- Engineering a Bridge Lesson (Grade: 4-6)*. <http://www.scholastic.com/browse/lessonplan.jsp?id=1509> (accessed August 22, 2014).
- Engineer Your Life Coalition. *Engineer Your Life*. <http://www.engineeryourlife.org/> (accessed November 30, 2009).
- Erickson, Lars. *The Toothpick Bridge*. <http://www.pisymphony.com/toothpick/toothpick1.htm> (accessed August 22, 2014)
- Expedition Engineering (In association with the Institution of Structural Engineers Educational Trust). *Bridge Builders' Teacher Pack*. [http://expeditionworkshed.org/assets/Bridge\\_builders\\_teacher\\_pack.pdf](http://expeditionworkshed.org/assets/Bridge_builders_teacher_pack.pdf) (accessed August 22, 2014).
- Expedition Engineering (In association with the Institution of Structural Engineers Educational Trust). *Bridge Building Competition: A Group Design, Build and Test Competition*. [http://expeditionworkshed.org/assets/Bridge\\_building\\_competition.pdf](http://expeditionworkshed.org/assets/Bridge_building_competition.pdf) (accessed August 22, 2014).
- Expedition Engineering (In association with the Institution of Structural Engineers Educational Trust). *Materials Interactive Fact File*. [http://expeditionworkshed.org/assets/Materials\\_fact\\_file.pdf](http://expeditionworkshed.org/assets/Materials_fact_file.pdf) (accessed August 22, 2014).
- González, Luis Alberto Segovia, Morsch, Inácio Benvegno, and Masuero, João Ricardo. *Didactic Games in Engineering Teaching – Case: Spaghetti Bridges Design and Building Contest*. (Proceedings of the 18<sup>th</sup> International Congress of Mechanical Engineering, 2005.) <http://www.ppgec.ufrgs.br/segovialespaguete/arquivos/COBEM2005-1756.pdf> (for college teachers). (accessed August 18, 2009)
- Harris Middle School. *Building Bridges: An Internet WebQuest on The Study of Bridges*. <http://volweb.utk.edu/Schools/bedford/harrisms/bridge.htm> (accessed August 18, 2009).
- History of Wire Rope in Suspension Bridges - The Roebling Story*. <http://www.inventionfactory.com/history/RHAgem/rstory/rsfound.html> (accessed November 19, 2007).
- Integrated Teaching and Learning Program, College of Engineering, University of Colorado, Boulder. *Curricular Unit: Bridges. Lesson 1: Bridging the Gaps. (Grade 8)*. [http://www.teachengineering.org/view\\_lesson.php?url=collection/cub\\_/lessons/cub\\_brid/cub\\_brid\\_lesson01.xml](http://www.teachengineering.org/view_lesson.php?url=collection/cub_/lessons/cub_brid/cub_brid_lesson01.xml) (accessed August 22, 2014).
- Integrated Teaching and Learning Program, College of Engineering, University of Colorado, Boulder. *Hands-on Activity: Bridge Types: Tensile and Compressive Forces. (Grade 8)*. [http://www.teachengineering.org/view\\_activity.php?url=http://www.teachengineering.org/collection/cub\\_/activities/cub\\_brid/cub\\_brid\\_lesson01\\_activity1.xml&rights=true#image1.jpg](http://www.teachengineering.org/view_activity.php?url=http://www.teachengineering.org/collection/cub_/activities/cub_brid/cub_brid_lesson01_activity1.xml&rights=true#image1.jpg) (accessed August 22, 2014).
- Integrated Teaching and Learning Program, College of Engineering, University of Colorado, Boulder. *Hands-on Activity: Straw Bridges. (Grade 8)*. [http://www.teachengineering.org/view\\_activity.php?url=collection/cub\\_/activities/cub\\_brid/cub\\_brid\\_lesson01\\_activity2.xml](http://www.teachengineering.org/view_activity.php?url=collection/cub_/activities/cub_brid/cub_brid_lesson01_activity2.xml) (accessed August 22, 2014).
- Integrated Teaching and Learning Program, College of Engineering, University of Colorado, Boulder. *Curricular Unit: Bridges. Lesson 2: Designing Bridges. (Grade 8)*. [http://www.teachengineering.org/view\\_lesson.php?url=collection/cub\\_/lessons/cub\\_brid/cub\\_brid\\_lesson02.xml](http://www.teachengineering.org/view_lesson.php?url=collection/cub_/lessons/cub_brid/cub_brid_lesson02.xml) (accessed August 22, 2014).
- Integrated Teaching and Learning Program, College of Engineering, University of Colorado, Boulder. *Hands-on Activity: Load It Up! (Grade 8)*. [http://www.teachengineering.org/view\\_activity.php?url=collection/cub\\_/activities/cub\\_brid/cub\\_brid\\_lesson02\\_activity1.xml](http://www.teachengineering.org/view_activity.php?url=collection/cub_/activities/cub_brid/cub_brid_lesson02_activity1.xml) (accessed August 22, 2014).
- Integrated Teaching and Learning Program, College of Engineering, University of Colorado, Boulder. *Curricular Unit: Bridges. Lesson 3: A Good Foundation*. [http://www.teachengineering.org/view\\_lesson.php?url=collection/cub\\_/lessons/cub\\_brid/cub\\_brid\\_lesson03.xml](http://www.teachengineering.org/view_lesson.php?url=collection/cub_/lessons/cub_brid/cub_brid_lesson03.xml) (accessed August 22, 2014).
- Integrated Teaching and Learning Program, College of Engineering, University of Colorado, Boulder. *Hands-on Activity: Shallow and Deep Foundations. (Grade 8)*. [http://www.teachengineering.org/view\\_activity.php?url=collection/cub\\_/activities/cub\\_brid/cub\\_brid\\_lesson03\\_activity1.xml](http://www.teachengineering.org/view_activity.php?url=collection/cub_/activities/cub_brid/cub_brid_lesson03_activity1.xml) (accessed August 22, 2014).
- Integrated Teaching and Learning Program, College of Engineering, University of Colorado, Boulder. *Curricular Unit: Bridges. Lesson 4: Strength of Materials. (Grade 8)*. [http://www.teachengineering.org/view\\_lesson.php?url=collection/cub\\_/lessons/cub\\_brid/cub\\_brid\\_lesson04.xml](http://www.teachengineering.org/view_lesson.php?url=collection/cub_/lessons/cub_brid/cub_brid_lesson04.xml) (accessed August 22, 2014).

## SUGGESTED READING

Integrated Teaching and Learning Program, College of Engineering, University of Colorado, Boulder. *Hands-on Activity: Breaking the Mold. (Grade 8)*. [http://www.teachengineering.org/view\\_activity.php?url=collection/cub/\\_activities/cub\\_brid/cub\\_brid\\_lesson04\\_activity1.xml](http://www.teachengineering.org/view_activity.php?url=collection/cub/_activities/cub_brid/cub_brid_lesson04_activity1.xml) (accessed August 22, 2014).

Integrated Teaching and Learning Program, College of Engineering, University of Colorado, Boulder. *Curricular Unit: Bridges. Lesson 5: Show Me the Money. (Grade 8)*. [http://www.teachengineering.org/view\\_lesson.php?url=collection/cub/\\_lessons/cub\\_brid/cub\\_brid\\_lesson05.xml](http://www.teachengineering.org/view_lesson.php?url=collection/cub/_lessons/cub_brid/cub_brid_lesson05.xml) (accessed August 22, 2014).

Integrated Teaching and Learning Program, College of Engineering, University of Colorado, Boulder. *Hands-on Activity: Cost Comparisons. (Grade 8)*. [http://www.teachengineering.org/view\\_activity.php?url=collection/cub/\\_activities/cub\\_brid/cub\\_brid\\_lesson05\\_activity1.xml](http://www.teachengineering.org/view_activity.php?url=collection/cub/_activities/cub_brid/cub_brid_lesson05_activity1.xml) (accessed August 22, 2014)

Johns Hopkins Virtual Laboratory: Bridge Designer. <http://www.jhu.edu/virtlab/bridge/truss.htm> (accessed August 18, 2009).

Junior Engineering Technical Society. <http://www.jets.org/students/index.cfm> (accessed November 30, 2009).

Lalupu, Heather, and Burgoyne, Chris (In association with the Institution of Structural Engineers Educational Trust). *Teaching Material for Use in Schools - Bridge Design*. <http://www-civ.eng.cam.ac.uk/cjb/schools/bridges1/index.html> (accessed August 22, 2014).

National Academy of Engineering. *Engineer Girl*. The EngineerGirl website is part of an NAE project to bring national attention to the opportunity that engineering represents to all people at any age, but particularly to women and girls. <http://www.engineergirl.org/> (accessed August 11, 2011).

National Building Museum. *Bridge Basics: Educator's Resource Packet (Grades 4 – 8)*. [http://www.nbm.org/assets/pdfs/youth-education/bridges\\_erpaket.pdf](http://www.nbm.org/assets/pdfs/youth-education/bridges_erpaket.pdf) (accessed August 22, 2014)

The National Partnerships for Afterschool Science – A Project of the Education Development Center. *Design It! Engineering in After School Programs: Paper Bridges*. <http://npass2.edc.org/sites/npass2.edc.org/files/Paper%20Bridges%20Sample.pdf> (accessed August 22, 2014)

PBS Bridge Basics. 2000 – 2001. *Building Big: Bridges*. <http://www.pbs.org/wgbh/buildingbig/bridge/> (accessed November 19, 2007).

Pelland, Beth C., and Fischer, Gideon. *The Golden Gate Bridge: From U.S. History to Physics. (Part of the Wright Center for Science Education Innovative Curriculum Series)*. <http://goldengatebridge75.org/assets/ggb75-pdfs-docs/wright-ggb.pdf> (accessed August 22, 2014).

Popsicle Bridge. [http://www.tryengineering.org/lesson\\_detail.php?lesson=56](http://www.tryengineering.org/lesson_detail.php?lesson=56) (accessed December 30, 2010).

Ranson, Anna. *Designing and Building Bridges Activity*. <http://theimaginationtree.com/2013/04/designing-and-building-bridges-activity.html> (accessed August 22, 2014).

Reitherman, Robert, Anagnos, Thalia, and Meluch, Wendy. *Building Bridges Between Civil Engineers and Science Museums*. Consortium of Universities for Research in Earthquake Engineering, 2008. [http://www.curee.org/projects/ce-museums/docs/cem\\_monograph.pdf](http://www.curee.org/projects/ce-museums/docs/cem_monograph.pdf) (accessed August 22, 2014).

Ryan, V. *Structures (42 lessons)*. <http://www.technologystudent.com/struct1/struindex.htm> (accessed August 22, 2014).

Schunn, Christian D. *How Kids Learn Engineering: The Cognitive Science Perspective*. The Bridge on K-12 Engineering Education, Volume 39, Number 3, Fall 2009. <https://www.nae.edu/Publications/Bridge/16145/16214.aspx> (accessed August 22, 2014).

Science Buddies Staff. *The Effect of Bridge Design on Weight Bearing Capacity*. [http://www.sciencebuddies.org/science-fair-projects/project\\_ideas/CE\\_p011.shtml#summary](http://www.sciencebuddies.org/science-fair-projects/project_ideas/CE_p011.shtml#summary) (accessed August 22, 2014).

Society of Women Engineers. *SWE Scholarships*. The SWE Scholarship Program provides financial assistance to women admitted to accredited baccalaureate or graduate programs, in preparation for careers in engineering, engineering technology and computer science. [http://societyofwomenengineers.swe.org/index.php?option=com\\_content&task=view&id=222&Itemid=229](http://societyofwomenengineers.swe.org/index.php?option=com_content&task=view&id=222&Itemid=229) (accessed August 11, 2011).

Unicycle NYC Bridge Tour. Unicycle enthusiasts Keith Nelson and Rob Hickman are on a mission to cross every bridge in New York City -- all 2,078 of them -- on one wheel. <http://unicyclenycbridgetour.blogspot.com> (accessed November 12, 2010)

U.S. Department of Transportation. *DOT Women and Girls Initiative - Pilot Entrepreneurial Training and Technical Assistance - Spelman College*. <http://www.dot.gov/wg/spelman.html> (accessed September 25, 2009).

U. S. Military Academy at West Point. *West Point Bridge Design Contest*. <http://bridgecontest.usma.edu/> (accessed November 19, 2007).

Washington State Department of Transportation. *Tacoma Narrows Bridge Lesson Plan. (Grades 1 – 4)*. <http://www.wsdot.wa.gov/tnbhistory/Lessons/BridgeCrossing.htm> (accessed August 22, 2014).

WGBH. 1997. *Nova Online - Super Bridge*. <http://www.pbs.org/wgbh/nova/bridge/> (accessed November 19, 2007).

Yale-New Haven Teachers Institute. 2001, Volume V. *Bridges: Human links and innovations*. <http://www.yale.edu/ynhti/curriculum/units/2001/5/> (accessed November 19, 2007).

### For Children And Young Adults– Careers

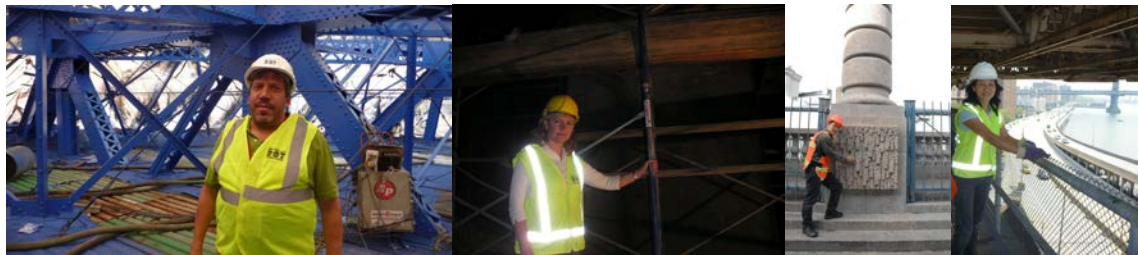
Baine, Celeste. *Is There A Civil Engineer Inside You? A Student's Guide to Exploring Civil Engineering*. Professional Publications, Incorporated, 2004.

Baine, Celeste. *Is There A Civil Engineer Inside You? A Student's Guide to Exploring Careers in Civil Engineering and Civil Engineering Technology*. Bonamy Publishing; Kindle edition, 2012.

## SUGGESTED READING



Assistant Mechanical Engineer Vera Ovetskaya. Construction Project Manager Beatriz Duran and Administrative Engineer Bhaskar Gusani in the Battery Park Underpass. (Credit: Tamara Berlyavsky) Brooklyn Bridge Engineer-in-Charge Ohene Duodu. Administrative Manager Christopher Brathwaite Assisting in Strain Gauge Balance Testing on Unionport Bridge in October 2010.



Associate Project Manager Richard Solomon. Component Rehabilitation Engineer Malgorzata Banka. Assistant Civil Engineer Andrew Hoang. (Credit: Peter Basich) Civil Engineer Tiffany Wong on the Brooklyn Bridge Traveler. (Credit: Andrew Hoang)

Bulleit, William M. *What Makes an Engineering Education an Engineering Education?* Proceedings of the Structures Congress 2012.

Canel, Annie, Oldenzel, Ruth, and Zachman, Karin, (editors). *Crossing Boundaries, Building Bridges: Comparing the History of Women Engineers, 1870s-1990s*. Gordon & Breach Publishing Group, 2000.

Hatch, Sybil E., and Vanoni, Vito A. (Editor). *Changing Our World: True Stories of Women Engineers* (ASCE Manuals and Reports on Engineering Practice, No. 109.) American Society of Civil Engineers, 2006.

Layne, Margaret Edith (editor). *Women in Engineering: Pioneers and Trailblazers*. American Society of Civil Engineers, 2009.

Layne, Margaret Edith (editor). *Women in Engineering: Professional Life*. American Society of Civil Engineers, 2009.

Pasternak, Ceel, and Thornburg, Linda. *Cool Careers for Girls in Construction*. Impact Publications, 2000.



Civil Engineers Tiffany Wong and Maria Mikolajczyk, Civil Engineer Aldona Ulanecka, Civil Engineer Simona Finkelstein, Staff Analyst Keisha Atkins, Civil Engineer Malgorzata Banka, and Associate Staff Analyst Raisa Rapoport. (Credit: Jagtar Khinda) Executive Director of Management and Support Services Dorothy Roses. Associate Staff Analyst Vera Ribakove and Community Assistant Shahnaz Begum.



Deputy Director of In-House Painting Earlene Powell. (Credit: Michele N. Vulcan) Assistant Highway Transportation Specialist Ajda Ozyurt. Project Manager Tamara Berlyavsky, Construction Project Manager Beatriz Duran. Assistant Mechanical Engineer Nancy Guernsey. (Credit: Kamran Sikandar). Computer Associate (Software) Laurie Oberson. (Credit: Michele N. Vulcan) Associate Staff Analyst Barbara Pedersen. Assistant Civil Engineer Olga Goranova-Rouyne, Civil Engineer Svetlana Kaganovskaya, and Assistant Civil Engineers Evgenia Campbell and Elena Marresova. (Credit: Paul Schwartz)

Society of Women Engineers Corporate Partnership Council. *Be That Engineer: Inspiration and Insight from Accomplished Women Engineers: Submissions from Members of the Society of Women Engineers' Corporate Partnership Council (CPC)*. Society of Women Engineers, 2014.

Walesh, Stuart G. *Engineering Your Future: The Professional Practice of Engineering*. Wiley, 2012.

Weingardt, Richard G. *Engineering Legends: Great American Civil Engineers (32 Profiles of Inspiration and Achievement)*. American Society of Civil Engineers, 2005.

## SUGGESTED READING

Williams, F. Mary, and Emerson, Carolyn J. *Becoming Leaders: A Practical Handbook for Women in Engineering, Science, and Technology*. American Society of Civil Engineers, ASME Press, and Society of Women Engineers, 2008.

### For Children – Brooklyn Bridge

Bildner, Phil, and Pham, LeUyen (illustrator). *Twenty-One Elephants*. Simon & Schuster Children's Publishing, 2005.

Curlee, Lynn. *Brooklyn Bridge*. Simon & Schuster Trade, 2001.

Cobblestone Magazine: Discover American History. The Great Bridge (Special Issue Focus on the Brooklyn Bridge). March 2010, Volume 31, Number 3.

Mann, Elizabeth, and Witschonke, Alan (illustrator). *The Brooklyn Bridge: The Story of the World's Most Famous Bridge and the Remarkable Family That Built It*. Mikaya Press, 2006.

Muaddi Darraj, Susan. *Brooklyn Bridge*. (Building America: Now and Then Series.) Chelsea House Publishers, 2009.

Prenzas, G. S. *The Brooklyn Bridge (Building America: Then and Now)*. Chelsea House Publications, 2009.

Prince, April Jones, and Roca, Francois (illustrator). *Twenty-One Elephants and Still Standing*. Houghton Mifflin, 2005. (Also available in a Spanish edition.)

Ratliff, Tom, and Bergin, Mark. *You Wouldn't Want to Work on the Brooklyn Bridge!: An Enormous Project That Seemed Impossible*. (You Wouldn't Want to...Series) Scholastic Library Publishing, 2009.

Tieck, Sarah. *Brooklyn Bridge*. ABDO Publishing Company, 2008.

Weiner, Vicki. *The Brooklyn Bridge: New York City's Graceful Connection*. Children's Press, 2004.



Brooklyn Bridge: 2009 Tower Closeup, 2010 View, 2010 Biennial Inspection. (2009 Credit: Emily Goodman, 2010 Credit: Jagtar Khinda, Inspection Credit: NYSDOT)

### Shorts, Video, Videodisc, and DVD

*Across Brooklyn Bridge*. American Mutoscope & Biograph, silent black and white, 1899.

Barnes, Michael. *Nova: Secrets of Lost Empires II - China Bridge*. WGBH Boston, 2000.

Bitzer, G.W. "Billy". *The Opening of the Williamsburg Bridge*. American Mutoscope & Biograph, silent black and white, 1904. Library of Congress - The Life of A City: Early Films of New York, 1898 to 1906. <http://lccn.loc.gov/00694395> (accessed May 29, 2014).

Bonine, Robert K. *Parade of Horses on Speedway*. American Mutoscope and Biograph Company, 1903. (High Bridge and Washington Bridge.) Library of Congress - The Life of A City: Early Films of New York, 1898 to 1906. <http://lccn.loc.gov/00694402> (accessed May 29, 2014).

Burns, Ken. *Ken Burns' America: Brooklyn Bridge*. PBS Home Video, DVD-2003, Video - 1982.

Fuller, Robert G., Zollman, Dean A., and Campbell, Thomas C. *The Puzzle of the Tacoma Narrows Bridge Collapse*. John Wiley & Sons, Videodisc - 1982.

Klein, Larry. *Building Big with David Macaulay: Bridges*. WGBH Records, 2000, WGBH Boston, DVD, 2004.

*Bob the Builder: On Site - Roads and Bridge*. Lyons/Hit Entertainment, DVD, 2008. (For Children.)

*Classic Famous Bridge Films DVD: 1930 - 1950s Golden Gate Suspension Bridge, Bridge Collapse Disaster, & Bridge Construction, Design And Engineering History Pictures Films*. Quality Information Publishers Inc., DVD, 2007.

*Design For Safety & Quality: The Inspection and Auditing Process of Bridges, and Some Important Lessons Learned*. Cimwarekandusa.com, DVD, 2006.

Eckerson Jr., C. *Streetfilms: Counting Bicyclists on NYC's Manhattan Bridge!* <http://www.streetfilms.org/counting-bicyclists-on-nycs-manhattan-bridge/> (accessed December 31, 2014).

Eckerson Jr., C. *Streetfilms: East River Bridges: 100 Years of Free Rides Take Their "Toll."* <http://www.streetfilms.org/east-river-bridges-100-free-years-take-a-toll/> (accessed October 6, 2011).

Eckerson Jr., C., and Press, E. *Streetfilms: NYC Bike to Work Day, 2009*. <http://www.streetsblog.org/2009/05/15/streetfilms-nyc-bike-to-work-day-2009/> (accessed December 1, 2009).

Eckerson Jr., C. *Streetfilms: Pulaski Bridge: Six Lanes for Cars; One Cramped Path for Bikes and Peds*. <http://vimeo.com/76018201/> (accessed November 14, 2013).

Eckerson Jr., C. *Streetfilms: The Queensboro Bridge Turns 100*. <http://www.streetsblog.org/2009/06/01/streetfilms-the-queensboro-bridge-turns-100/> (accessed December 1, 2009).

Eckerson Jr., C. *Streetfilms: The Sands Street Bike Path, a New Kind of Bridge Approach*. <http://www.streetsblog.org/2009/09/25/streetfilms-the-sands-street-bike-path-a-new-kind-of-bridge-approach/> (accessed December 1, 2009).

Eckerson Jr., C. *Streetfilms: Turning NYC's Oldest Bridge Into Its Newest Bike-Ped Amenity*. [High Bridge] <http://www.streetsblog.org/2009/11/30/streetfilms-turning-nycs-oldest-bridge-into-its-newest-bike-ped-amenity/> (accessed December 1, 2009).

*Extreme Engineering Season 2 - Episode 5: Oakland Bay Bridge*. Discovery, DVD, 2006.

*Extreme Engineering Season 2 - Episode 6: Cooper River Bridge*. Discovery, DVD, 2006.

## SUGGESTED READING

- Farrell, Stephen. *An Umbrella's View of Snowy New York*. <http://www.nytimes.com/2015/03/06/nyregion/video-an-umbrellas-view-of-snowy-new-york.html> (accessed March 6, 2015.)
- Maillart's Bridges a.k.a. Maillarts Brücken*. 451, DVD, 2008.
- Mega Movers - Massive Bridges*. A&E Home Video, DVD, 2007.
- Modern Marvels: Brooklyn Bridge*. A&E Home Video, DVD, 2005.
- Modern Marvels: The Golden Gate Bridge*. A&E Entertainment, Video, 1994, A & E Home Video, DVD, 2004.
- Modern Marvels: George Washington Bridge*. A&E Home Video, DVD, 2006.
- Modern Marvels: New York Bridges*. A&E Home Video, DVD, 2006.
- Modern Marvels: The World's Longest Bridge*. A&E Home Video, DVD, 2006.
- New Brooklyn to New York via Brooklyn Bridge, No. 1 and No. 2*. Edison Manufacturing Company, silent black and white, 1899.
- Nova: Super Bridge*. WGBH Boston Video, 1997, DVD, 2007.
- Oregon Covered Bridges*. Travelvideostore.com, DVD, 2005.
- Panorama of Brooklyn Bridge, River Front, and Tall Buildings from the East River*. Edison Manufacturing Company, silent black and white, 1901.
- Passengers Descending from the Brooklyn Bridge*. Lumière, silent black and white, 1896.
- Porter, Edwin S. *Panorama of Blackwell's Island, N.Y.* (Shows the piers for the Queensborough or 59<sup>th</sup> Street Bridge beginning at Frame 2388.) Thomas A. Edison, Inc., 1903. Library of Congress - The Life of A City: Early Films of New York, 1898 to 1906. <http://lccn.loc.gov/00694366> (accessed May 29, 2014).
- Porter, Edwin S. *Panorama Water Front and Brooklyn Bridge From East River*. (Shows the Brooklyn Bridge beginning at Frame 4202.) Thomas A. Edison, Inc., 1903. Library of Congress - The Life of A City: Early Films of New York, 1898 to 1906. <http://lccn.loc.gov/00694364> (accessed May 29, 2014).
- A Remarkable Fire (Brooklyn Bridge)*. American Mutoscope & Biograph, silent black and white, 1902.
- Ross, Daniel, and Rezvani, Bijan. *The City Concealed: High Bridge*. <http://www.thirteen.org/thecityconcealed/2011/01/11/high-bridge/> (accessed June 9, 2015)
- Smith, James Blair. *Opening of New East River Bridge, New York*. (Opening of Williamsburg Bridge.) Thomas A. Edison, Inc., 1903. Library of Congress - The Life of A City: Early Films of New York, 1898 to 1906. <http://lccn.loc.gov/00694396> (accessed May 29, 2014).
- View of Brooklyn Bridge from a Ferryboat*. American Mutoscope & Biograph, silent black and white, 1899.
- Woolard, William. *Wonder of Science: Bridging the Future*. DigicomTV, DVD, 2009.



Manhattan Bridge Plaque Detail. (Credit: Peter Basich)

Revised 2/25/15

## 2014 INVENTORY LOCATION MAPS

On these maps, all Community Boards consist of three (3) digits. The first digit is for map plotting purposes. The next two digits identify the Community Board. In cases of certain parks and airports, the Community Board number does not correspond with any Community Board. These exceptions are:

<b>Bronx</b>	26=Van Cortlandt Park	<b>Brooklyn</b>	55=Prospect Park
	27=Bronx Park		56=Gateway Nat'l Rec. Area/Floyd Bennett Field
	28=Pelham Bay Park	<b>Queens</b>	80=La Guardia Airport
<b>Manhattan</b>	64= Central Park		81=Alley Pond Park
			82=Cunningham Park
			83=JFK Airport
			84= Gateway Nat'l Rec. Area/Fort Tilden-Jacob Riis Park

The Community Board listings correspond to those listed in the inventory, which begins on page 183.

Some structures fall on Community Board dividing lines: their additional Community Boards are identified in the inventory in columns CD2 and CD3.



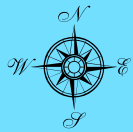
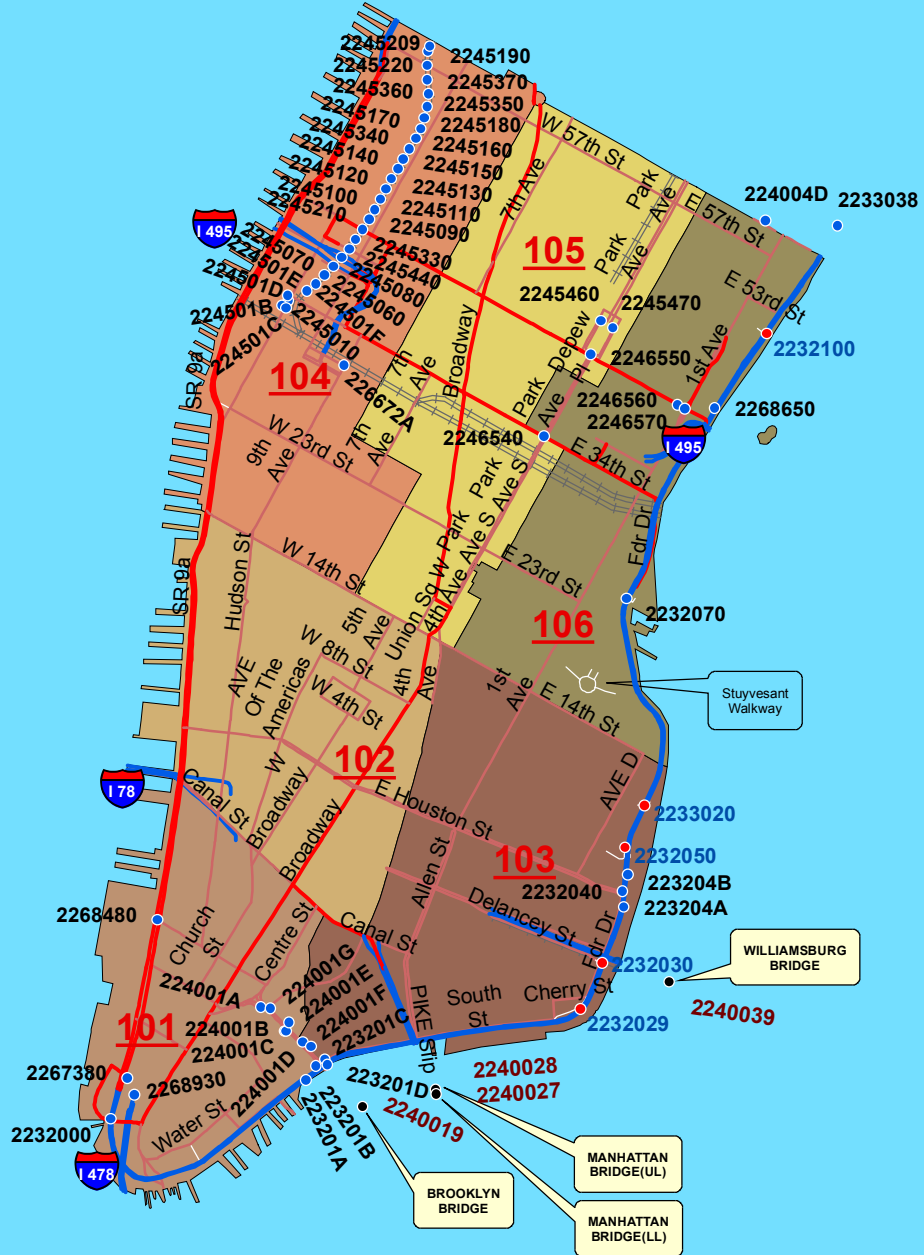
DUMBO Cove and Brooklyn Bridge in July 2013. (Credit: Russell Holcomb) Manhattan and Williamsburg Bridges. FDNY Boat Test Near the Brooklyn Bridge in March 2012. (Credit: Michele N. Vulcan) Duck Family Crossing the East 64<sup>th</sup> Street Pedestrian Bridge over the FDR Drive in June 2013. (Credit: Paul Schwartz) View From Agency Headquarters of the Sunrise over the Brooklyn and Manhattan Bridges in January 2014. (Credit: Olympia Beatty)



# ALL BOROUGHES

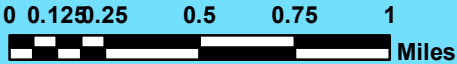


# DOWNTOWN MANHATTAN



Legend		Community Districts	
●	Bridges in Parks	101	105
●	Manhattan/Brooklyn Bridges	102	106
●	DOT Bridges	103	
—	Primary Limited Access	104	
—	Primary US & State Highways	106	
—	Secondary State & County		
—	Local, Neighborhood, Rural		
—	Pedestrian Way		
—	Downtown Manhattan Railway Lines		

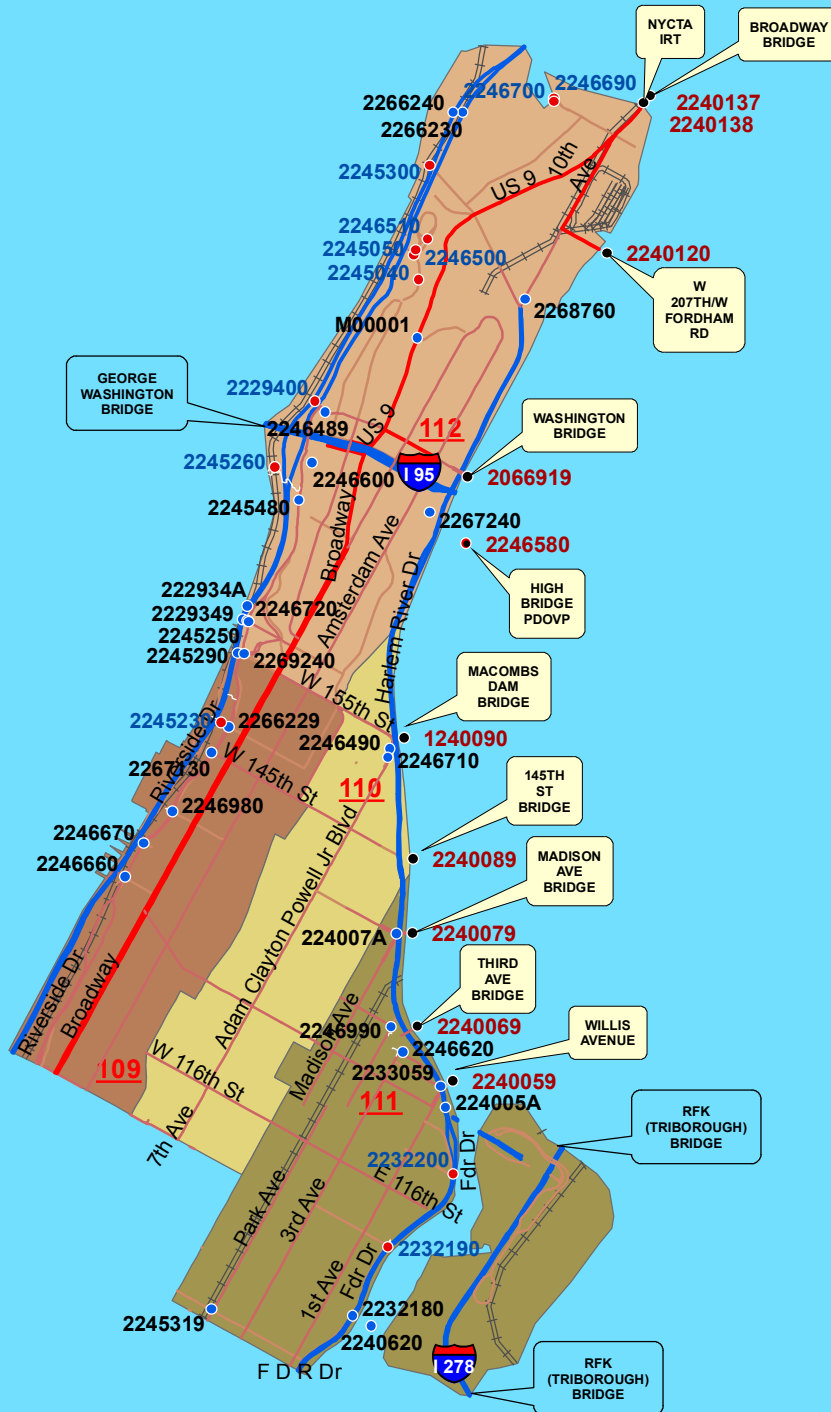
# MIDTOWN MANHATTAN



Legend		Community Districts	
●	Bridges in Parks	107	108
●	Manhattan/Queens Bridges	164	
●	DOT Bridges		
—	Primary Limited Access		
—	Primary US & State Highways		
—	Secondary State & County		
—	Freeway Ramp		
—	Other Ramp		
—	Local, Neighborhood, Rural		
—	Cul-de-sac, Traffic Circle		
—	Pedestrian Way		
—	Midtown Manhattan Railway Lines		

- 2240640 ROOSEVELT ISLAND BRIDGE
- 2240047 QUEENSBORO BRIDGE (LL)
- 2240048 QUEENSBORO BRIDGE (UL)

# UPTOWN MANHATTAN



Legend		Community Districts
●	Bridges in Parks	109
●	Bronx/Manhattan Bridges	110
●	DOT Bridges	111
—	Primary Limited Access	112
—	Primary US & State Highways	
—	Secondary State & County	
—	Local, Neighborhood, Rural	
—	Pedestrian Way	
—	Uptown Manhattan Railway Lines	

# BRONX



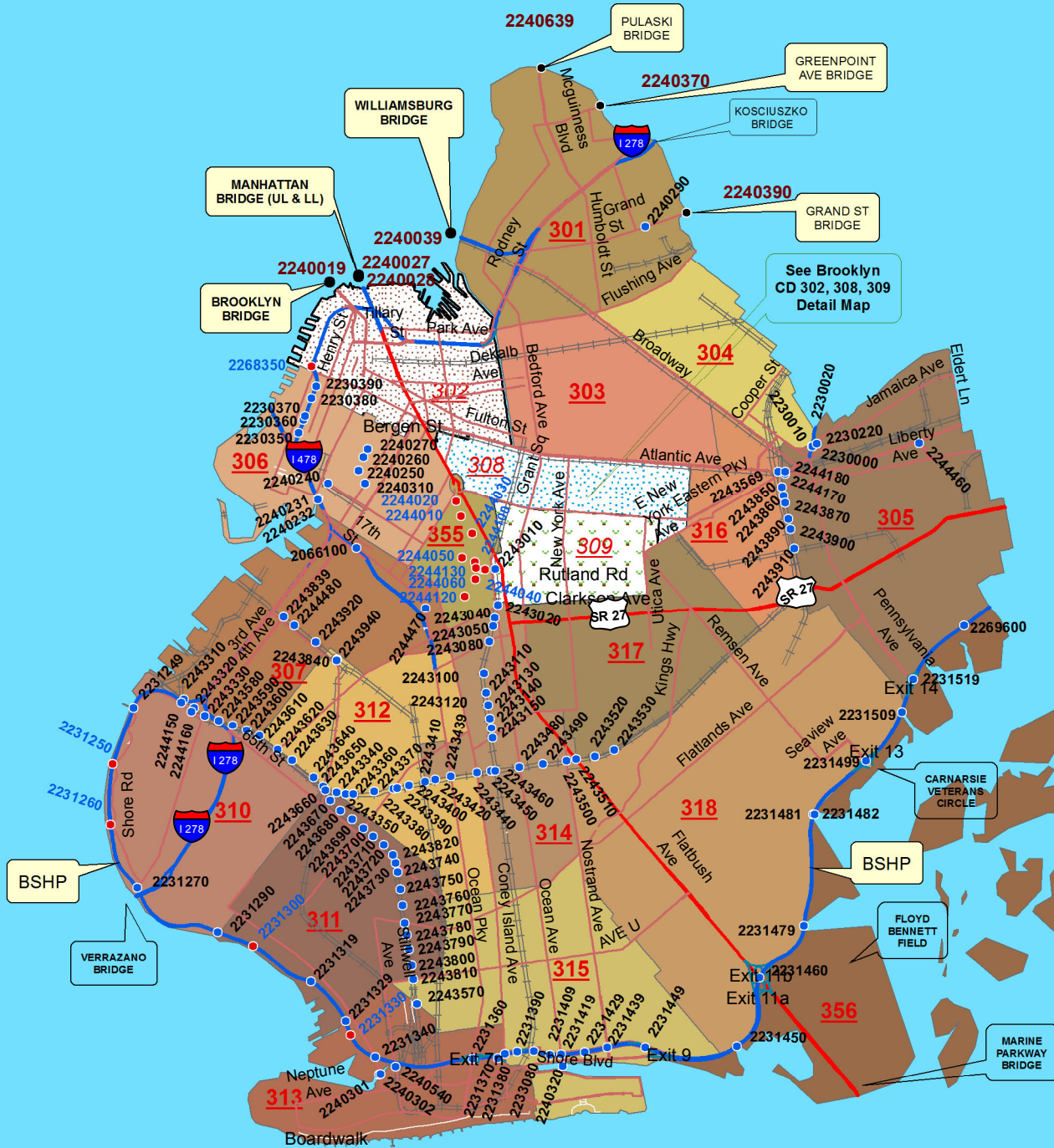
**Legend**

- Bridges in Parks
- Bronx/Manhattan Bridges
- Department of Education
- DOT Bridges
- Primary Limited Access
- Primary US & State Highways
- Secondary State & County
- Freeway Ramp
- Other Ramp
- Local, Neighborhood, Rural
- Cul-de-sac, Traffic Circle
- Other minor access roads
- 4WD
- Pedestrian Way
- Ferry
- Bronx Railway Lines

**Community Districts**

201 202 203 204 205 206 207 208 209 210 211 212 215 216 217 218 219 220 221 222 223 224 225 226 227 228 229

# BROOKLYN



**Legend**

- Bridges in Parks
- Brooklyn/Queens Bridges
- Manhattan/Brooklyn Bridges
- DOT Bridges
- Primary Limited Access
- Primary US & State Highways
- Secondary State & County
- Freeway Ramp
- Pedestrian Way
- ▭ Brooklyn Railway Lines

**Brooklyn Community Districts**

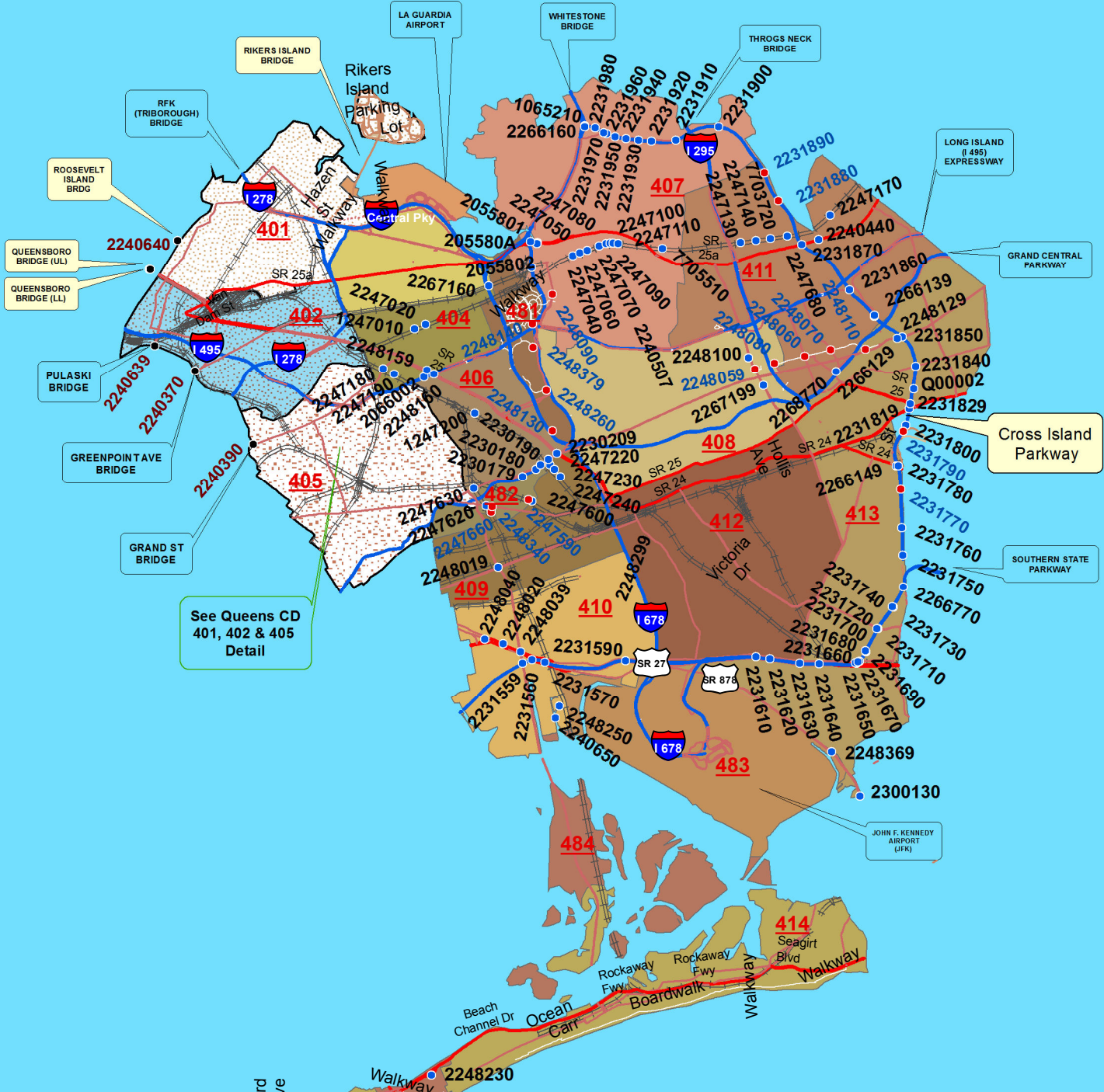
# BROOKLYN

## CD 302, 308, 309 DETAIL



Legend	
<span style="color: red;">●</span>	Bridges in Parks
<span style="color: blue;">●</span>	DOT Bridges
<span style="color: blue;">—</span>	Primary Limited Access
<span style="color: red;">—</span>	Primary US & State Highways
<span style="color: orange;">—</span>	Secondary State & County
<span style="color: lightblue;">—</span>	Local, Neighborhood, Rural
<span style="color: grey;">—</span>	Pedestrian Way
<span style="color: grey;">—</span>	Brooklyn Railways
<span style="background-color: #d2b48c; width: 15px; height: 10px; display: inline-block;"></span>	Community Districts
<span style="background-color: #f08080; width: 15px; height: 10px; display: inline-block;"></span>	302
<span style="background-color: #f0e68c; width: 15px; height: 10px; display: inline-block;"></span>	308
<span style="background-color: #f0e68c; width: 15px; height: 10px; display: inline-block;"></span>	309

# QUEENS



See Queens CD  
401, 402 & 405  
Detail

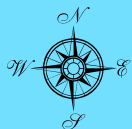
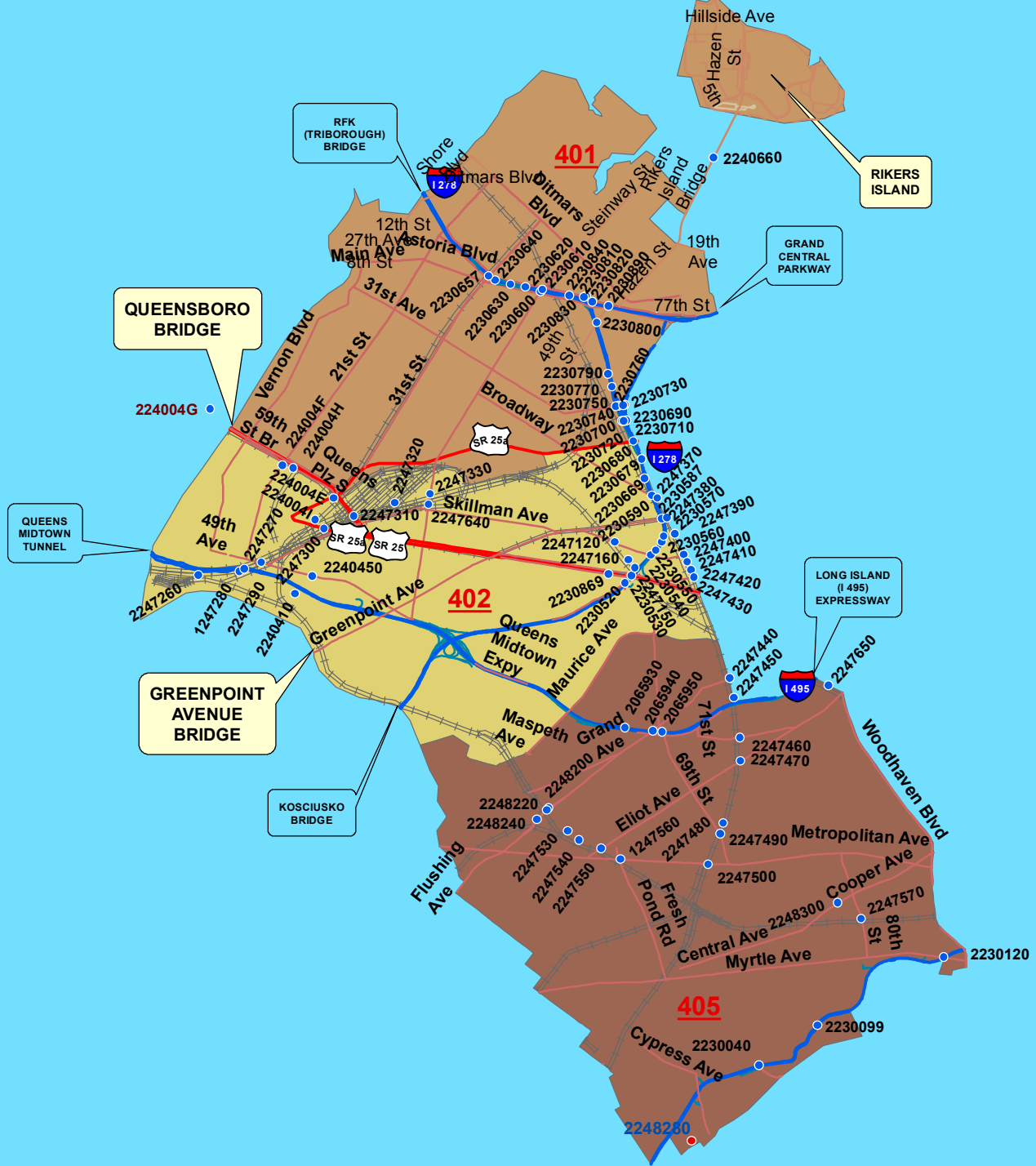


Legend		Community Board	
<span style="color: red;">●</span>	Bridges in Parks	401	402
<span style="color: red;">●</span>	Queens/Manhattan Bridges	403	404
<span style="color: blue;">●</span>	Brooklyn/Queens Bridges	405	406
<span style="color: blue;">●</span>	DOT Bridges	407	408
<span style="color: blue;">—</span>	Primary Limited Access	409	410
<span style="color: red;">—</span>	Primary US & State Highways	411	412
<span style="color: red;">—</span>	Secondary State & County	413	414
<span style="color: red;">—</span>	Other Ramp	415	416
<span style="color: red;">—</span>	Local, Neighborhood, Rural	417	418
<span style="color: red;">—</span>	Cul-de-sac, Traffic Circle	419	420
<span style="color: red;">—</span>	Other minor access roads	421	422
<span style="color: red;">—</span>	Pedestrian Way	423	424
<span style="color: red;">—</span>	Queens Railway Lines	425	426



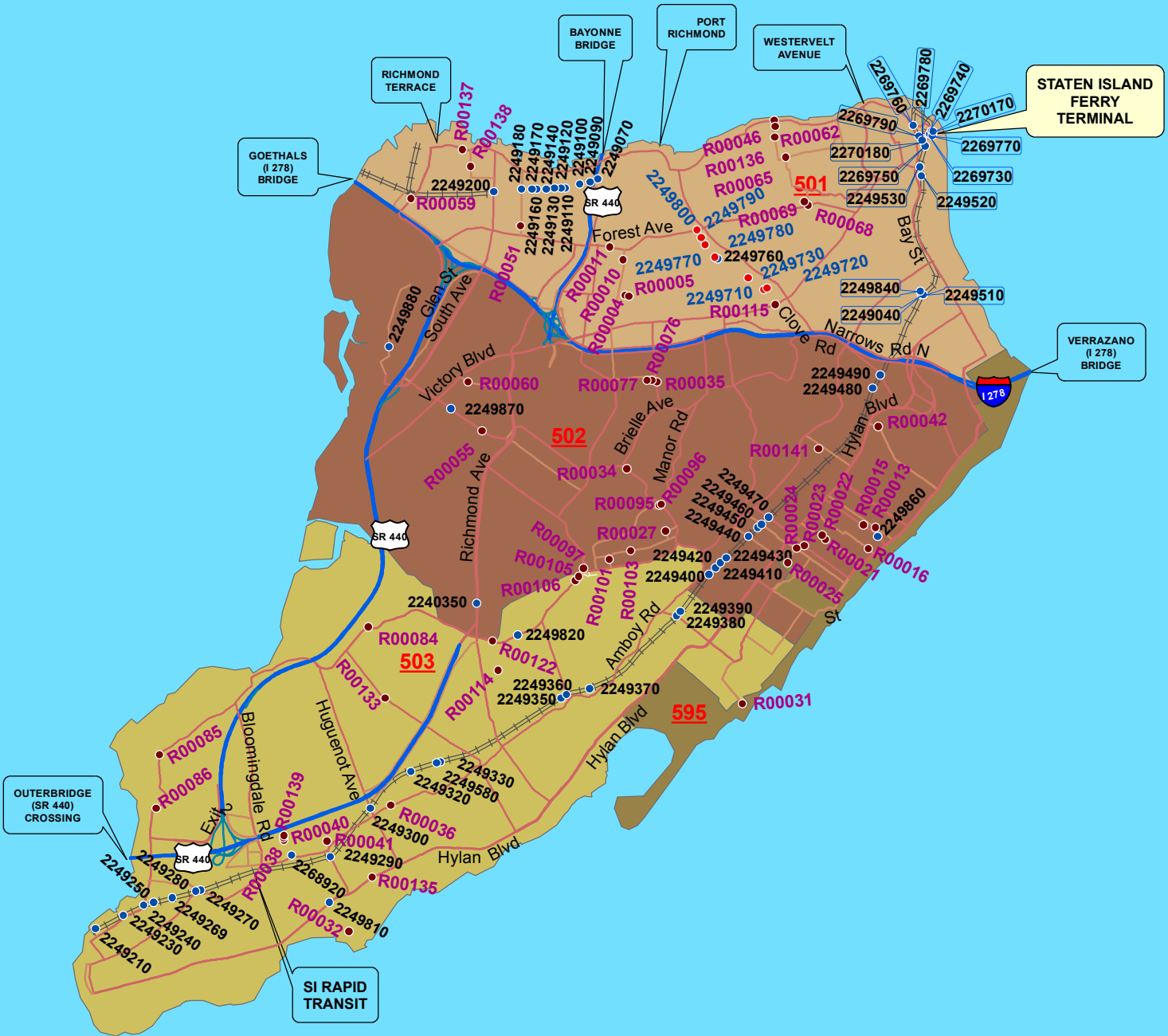
# QUEENS

## CD 401, 402, 405 DETAIL



Legend	
● Bridges in Parks	Community Boards
● DOT Bridges	401 402 405
— Primary Limited Access	
— Primary US & State Highways	
— Secondary State & County	
— Freeway Ramp	
— Local, Neighborhood, Rural	
— Other minor access roads	
— Pedestrian Way	
— Queens Railway Lines	

# STATEN ISLAND



Legend	
● Bridges in Parks	Community Districts
● Culverts	501 502 503 595
● DOT Bridges	
— Primary Limited Access	
— Primary US & State Highways	
— Secondary State & County	
— Freeway Ramp	
— Other Ramp	
— Local, Neighborhood, Rural	
— Pedestrian Way	
— Staten Island Railway Line	



Bill de Blasio  
Mayor



Polly Trottenberg  
Commissioner