



NYC DOT Bridges & Tunnels Annual Condition Report 2015



NEW YORK CITY DEPARTMENT OF TRANSPORTATION DIVISION OF BRIDGES 2015 BRIDGES AND TUNNELS ANNUAL CONDITION REPORT



Summer College Intern Litcy Barreto on the Third Street Bridge During Strain Gauge Installation in July 2015. (Credit: Vera Ovetskaya)

Bill de Blasio, Mayor

Polly Trottenberg, Commissioner

Lori A. Ardito, First Deputy Commissioner

Robert O. Collyer, P.E., Chief Bridge Officer

George W. Klein, P.E., Deputy Chief Engineer, Maintenance, Inspections & Operations

David B. Dunn, P.E., Deputy Chief Engineer, Bridge Capital Design & Construction

Dorothy Roses, Executive Director, Management & Support Services

Anilkumar Vyas, P.E., Deputy Chief Engineer, Engineering Review & Support

Joannene Kidder, Chief Staff Manager/Executive Director, Community Affairs

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Acknowledgements

Research and Analysis

For their contributions and assistance in the preparation of this report, the Division of Bridges would like to thank the following: Hasan Ahmed, Krishan Baweja, Robert Collyer, Udayakumar Dommaraju, David Dunn, Beatriz Duran, Sudhir Jariwala, Paul Kahn, George Kern, Joannene Kidder, George Klein, Kevin McAnulty, Marlyn Nuñez, NYCDDC, NYSDOT, Raisa Rapoport, Ronald Rauch, Javed Riaz, Vera Ribakove, Dorothy Roses, Paul Schwartz, Dinesh Shah, Rahul Shah, Haelee Shin, Vadim Sokolovsky, Anilkumar Vyas, Thomas Whitehouse, and Bojidar Yanev.

Photography

For the photographs used in this report, the Division of Bridges would like to thank the assistance of the following: Artemio Angeles, Litcy Barreto, Ludner Charles, Scott Davis, Gordon Goldberg, Russell Holcomb, Jaclyn Jablkowski, Ali Mallick, Vera Ovetskaya, Albert Pappas, Sergey Parayev, Eugene Parker, Jitendra Patel, Cesar Pazmino, Earlene Powell, Moshin Rizvi, Paul Schwartz, Reza Sharif, Vadim Sokolovsky, Richard Solomon, Samuel Teaw, Thomas Whitehouse, Tiffany Wong, and Bojidar Yanev.

Cover Photograph

Division staff at work: 174th Street Bridge sidewalk repair in 2006 (Credit: Reza Taheri), lubricating the Broadway Bridge in 2007 (Credit: Reza Taheri), checking the 9th Street Bridge mechanisms in 2005 (Credit: Vera Ovetskaya), resurfacing the Roosevelt Avenue Bridge in 2010 (Credit: Joseph Flood), removing snow on the Brooklyn Bridge in 2003, strain gauge testing on the Roosevelt Island Bridge in 2015, and checking measurements in 2006 (Credit: Peter Basich).

Cover Design

Michele N. Vulcan, Director of Analysis – Bridges

David Moidel – NYCDOT Director, and Melanie Michel – Graphic Designer, Creative Services

Map and Inventory Preparation

Kevin McAnulty, Director, Bridge Management Unit

Fitz Arthur Brown and Lidiya Akhmedova, Bridge Management Unit

Claudio Revelo and Babu Thomas, NYSDOT Region 11

Report Compiled and Prepared by:
Michele N. Vulcan, Director of Analysis - Bridges
New York City Department of Transportation
55 Water Street, 5th Floor
New York, New York 10041

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 2015 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 innovations and improvements that the Division of Bridges achieved in 2015.

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, all of our 789 bridges are rated "Fair" or above.

In 2015 we started construction on the Belt Parkway Bridge over Mill Basin in Brooklyn and the Macombs Dam Bridge in the Bronx, and we broke ground this past summer on the reconstruction of the Roosevelt Avenue Bridge over the Van Wyck Expressway in Queens.

Work is also underway for the rehabilitation of the damages sustained to the electrical and mechanical equipment for 13 of the movable bridges. Several of these bridges will have the mechanical and electrical equipment raised and protected above flood levels.

We will invest \$633 million for improvements to the four iconic East River Bridges, \$228 million for the Bruckner Expressway, and \$97 million for the rehabilitation of northbound FDR from East 42nd – East 49th Streets.

Safe and convenient bridge access for bikes is crucial to making New York City more bike-friendly. We are improving bike connections between Brooklyn and Queens with the construction of a two-way bike path on the Pulaski Bridge.

In Brooklyn, we are studying how to rehabilitate and reconstruct the 21 interconnected bridge structures that carry the Brooklyn Queens Expressway from Atlantic Avenue to Sands Street, including the "triple cantilever" stacked section of highway completed in 1948, topped by the iconic Brooklyn Heights Promenade. With no reconstruction work in

recent history, the triple cantilever is in need of major repair with many components experiencing significant deterioration. These structures serve as Brooklyn's only interstate and one of the most heavily traveled roads in New York City. At peak hours, 18% of the Brooklyn Queens Expressway traffic is trucks, which the surrounding street network could not serve. In addition to replacing this crumbling infrastructure, the proposed project will eliminate substandard conditions and bring the roadway up to current safety standards by building wider lanes and full width safety shoulders. As a first step, in 2015, we completed various studies needed to inform the decision on the alignment for the replacement structure (including tunnel options).

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 2015, 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 to zero in the number of bridges rated “Poor,” and an increase in the number of bridges rated “Good,” as shown below.

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Poor	3	3	3	4	4	3	1	1	0	0
Fair	456	459	455	456	462	459	460	456	456	458
Good	210	215	213	209	207	215	212	217	221	228
Vgood	118	111	116	116	113	109	114	114	111	102
Closed		1	1	1	1	1	1	1	1	1
	787	789	788	786	787	787	788	789	789	789

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 76th Road, was rated “Poor.” It has since been closed.

¹In 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.

²In 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.

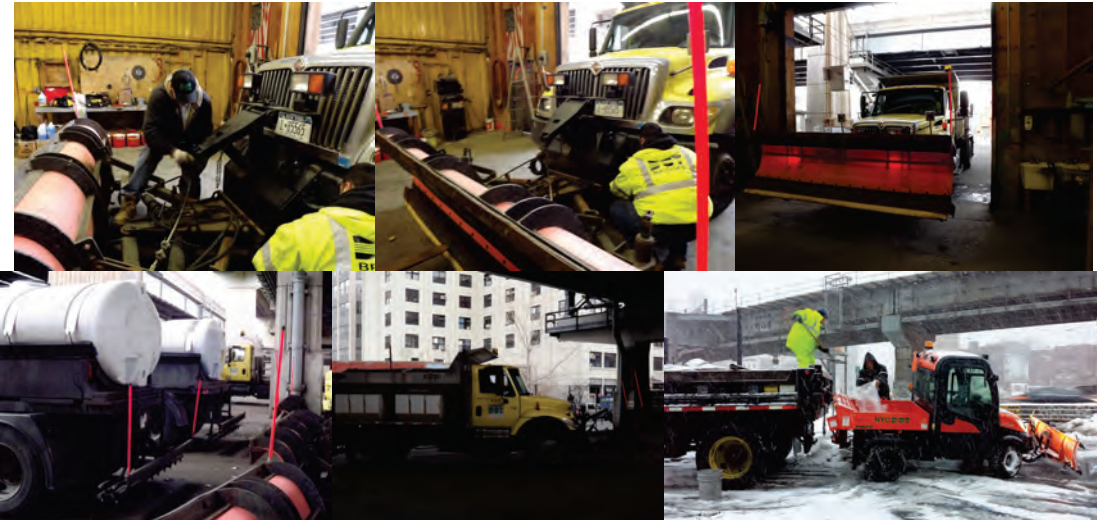
Incentive and disincentive (I/D) clauses are another contract provision used in some reconstruction projects that are implemented through a contract pay item. Under this provision, the contractor is compensated a certain amount of money for each day if the identified work in a critical milestone is completed 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.

EXECUTIVE SUMMARY

In the winter of 2014-2015, a total of 79,100 gallons of potassium acetate and 285 tons of sodium acetate were applied on the roadways of all four East River Bridges.



Preparing the Plows and Spray Trucks. (Credit: Thomas Whitehouse) Loading Solid Chemical for Spot Applications on the Williamsburg Bridge Walkway/Bicycle Path. (Credit: Paul Schwartz)

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 was expected to be complete in August 2016. However, the construction activities will be extended to August 2017, due to site condition and change in scope.

2015 Awards

In 2015, the outstanding work of the Division was recognized by the receipt of several awards.

In January 2015, the Society for Protective Coating selected the painting of the Brooklyn Bridge (Contract #6) for a 2014 George Campbell Award. The project was recognized for outstanding achievement in the completion of a difficult or complex industrial or commercial coatings project.

In March 2015, the American Council of Engineering Companies of New York selected the Bruckner Expressway Bridges over Amtrak project for a Silver Award in the structural systems category in its 2015 Engineering Excellence Awards.

In October 2015, Deputy Chief Engineer for Capital Design and Construction David Dunn received an Honored Industry Leader Award from the South Asian American Association.

EXECUTIVE SUMMARY

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.