



2013 NYC DOT BRIDGES & TUNNELS ANNUAL CONDITION REPORT



Bill de Blasio
Mayor



Polly Trottenberg
Commissioner

**NEW YORK CITY DEPARTMENT OF TRANSPORTATION
DIVISION OF BRIDGES
2013 BRIDGES AND TUNNELS ANNUAL CONDITION
REPORT**



Manhattan Bridge Tower Detail. (Credit: Brian Gill)

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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 2013 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 2013.

The Division of Bridges includes 787 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 but one of our 789 bridges are rated "Fair" or above, or are in construction.

- The completion of a \$217 million project to rehabilitate eight bridges accessing the Staten Island Ferry Terminal, which serve upwards of 60,000 daily commuters. The FTA provided \$175 million to support the project and DOT completed its work with minimal disruption to passengers.
- The Manhattan Bridge cable project included the rehabilitation or replacement of all of bridge's 168 cables and suspenders. The project also provided for the operation of the HOV lane for minimal disruption to traffic. Using federal, state and local funds, DOT completed the \$149 million project on time and within budget.
- The completion of the Fresh Creek Bridge, Rockaway Parkway Bridge and the Paerdegat Basin Bridge on the Belt Parkway one year ahead of schedule with a contract value of \$365 million.

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.

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 Trotterberg
Commissioner

Inventory

In calendar year 2013, the inventory of bridges under the jurisdiction of the Division increased to 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.

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Poor	6	4	3	3	3	4	4	3	1	1
Fair	456	458	456	459	455	456	462	459	460	456
Good	212	210	210	215	213	209	207	215	212	217
Vgood	116	118	118	111	116	116	113	109	114	114
Closed				1	1	1	1	1	1	1
	*790	790	787	789	788	786	787	787	788	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.

† 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.

The City has only one bridge that was rated "poor" after its last inspection. A poor rating means that there are components of the bridge that must be rehabilitated; it does not mean that the bridge is unsafe. If a bridge was deemed unsafe, it would be closed. The term "structural deficiency" is an engineering term-of-art used by the Federal government to indicate a defect requiring corrective action. According to the FHWA, "structurally deficient" means there are elements of the bridge that need to be monitored and/or repaired. The fact that a bridge is "deficient" does not imply that it is likely to collapse or that it is unsafe. It means it must be monitored, inspected, and maintained. Because we use the New York State rating system, we do not use that term and instead use the terms "very good," "good," "fair" and "poor." As with the Federal term, the terms "fair" and "poor" describe the condition of bridge elements and whether they are functioning as designed. Although these elements are not considered hazardous, the ratings are used to determine whether the elements require repair or rehabilitation. Again, any bridge deemed unsafe would be shut to the public.

The City bridge that is rated "poor" is the Brooklyn Bridge. It was given a "poor" rating during its last inspection because there are certain elements of the bridge that need to be rehabilitated. While the main spans are in good condition, the decks on both the Manhattan and Brooklyn ramps and approaches to the bridge are aging and are being replaced during a rehabilitation project that began on January 19, 2010. It should be noted that of the 75 spans of the bridge, only 6 spans contribute to the low condition rating. None of them are among the three suspended spans (i.e. between the anchorages).

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 2012-2013, a total of 43,540 gallons of potassium acetate and 107 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.

2013 Awards

In 2013, the outstanding work of the Division was recognized by the receipt of several awards.

In April 2013, the American Council of Engineering Companies of New York selected the reconstruction of the East 8th Street Access Ramp (Guider Avenue Ramp to Belt Parkway) over Belt Parkway for a Gold Award in the structural systems category in its 2013 Engineering Excellence Awards.

In June 2013, the Metropolitan Section of the American Society of Civil Engineers selected the rehabilitation of the St. George Staten Island Ferry Terminal Ramps as its Design-Build Project of the Year.

In September 2013, Director of Component Rehabilitation Krishan Baweja received an Outstanding Achievement Award from the South Asian American Association.

EXECUTIVE SUMMARY

In November 2013, the *Engineering News-Record of New York* selected the rehabilitation of the St. George Staten Island Ferry Terminal Ramps for an Award of Merit in the Airports/Transit category in its 2013 Best Projects Competition, spanning the New York, New Jersey and Connecticut region.

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.