THE PROJECT TEAM

Robert Collyer, P.E.  Deputy Commissioner for Bridges
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For questions and concerns:

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www.facebook.com/BQEAtlanticToSands
AGENDA

1. NYS Highway System – Built vs. Unbuilt
2. Recent Pavement Repairs
3. In-Depth Inspection Findings
   • Concrete Arches
   • Multigirder Structures
   • Cantilever Structures
4. Ongoing Traffic Study
5. Upcoming Steps
THE 21 BRIDGES

Atlantic Avenue Interchange
NYS HIGHWAY SYSTEM

REGION 11

BUILT/UNBUILT SYSTEM

Built
Arterials and highway systems meeting current standards and included in NYS system.

Un-Built
Existing or proposed main routes that have not been upgraded to current standards or included in NYS system.

NYS Highway Law Section 349 Established List of Routes to be included in the system (passed in the 1940s)
RECENT PAVEMENT REPAIRS

Sections of the BQE roadway were repaired and repaved during the overnight hours

Queensbound:  
July 19 - July 23

Staten Island bound:  
July 24 - July 31

Milled Surface

Base Repair
IN DEPTH INSPECTION

Inspection Goals
• Identify issues needing immediate intervention
• Determine strength and useful life of BQE bridges

Inspection Findings
• No immediate concerns, including the triple cantilever discovered after 5 months of in-depth inspection.
• Structure is nearing end of service life, major rehabilitation or replacement planning must begin or major disruption for repairs can be expected in 10-12 years
**IN DEPTH INSPECTION**

**Inspection Process**
- Hands-on inspections
- Testing of concrete cores and few rebars
- Load Carrying Capacity Analysis

![Access opening](image1.png)

![Concrete coring](image2.png)
INSPECTION - CONCRETE CORES

Test for following items

• Freeze Thaw Durability: Indication of concrete structure’s durability

• Chloride Content: Higher chloride content increases rate of corrosion

• Compressive Strength: Indication of capacity of structure
**NON DESTRUCTIVE TESTING**

**Non-Destructive Testing**: Various measurements which provide indication of corrosion rates, cracks and moisture penetration.

Pavers were removed for testing on the Promenade then replaced once completed.

*Focused in Triple Cantilever Area*
BRIDGE TYPES

Findings broken into **three** types of Bridges within the project

- Concrete Arches
- Multigirder Structures
- Cantilever Structures
CONCRETE ARCHES
Concrete arches are all located at the north end of the project.
INSPECTION FINDINGS ARCHES

Top of Deck
- Cracked Barriers
- Uneven Pavement

Under deck
- Exposed Reinforcement
- Corroded Steel Mesh
- Leakage
CONCRETE ARCHES – SUMMARY

Analysis findings:

Adequate Load Carrying Capacity

Durability Results:
- High Chloride content
- Low freeze-thaw performance
- Good strength
MULTIGIRDER STRUCTURES
Locations of Multigirder structures

- BQE over Cadman Pl E
- BQE over Washington St
- BQE over Prospect St
- Columbia Heights over BQE
- BQE over Old Fulton St
- BQE over Sands St
INSPECTION FINDINGS – TOP OF DECK

- Spalled/ uneven pavement
- Leakage through joints

Plates at Columbia Hts bridge
INSPECTION FINDINGS – UNDERDECK

Wire Mesh Corrosion from Leakage

Temporary Supports
INSPECTION FINDINGS – RETAINING WALLS & SUBSTRUCTURE

• Deterioration at bearings
• Granite anchor corrosion
MULTIGIRDERS – SUMMARY

Analysis findings:

Adequate Load Carrying Capacity

Durability Results:
- High Chloride content except at Sands St
- Low freeze-thaw performance except Sands St
- Good strength except at Columbia Hts
CANTILEVER STRUCTURES

Locations of Cantilever structures

- BQE WB over Furman St
- BQE EB over WB
- Brooklyn Promenade
- BQE over Joramelon St
- BQE over York St
CANTILEVERS

Triple Cantilever

Joramelon St

York St
ACCESS INTO CANTILEVER - EXTERIOR

Removing concrete for access

Removing Granite

Access
ACCESS INTO CANTILEVER: INTERIOR

Underdeck looking upwards

Underdeck

Formwork left in place

Transverse Access being created
ACCESS INTO CANTILEVER: INTERIOR

- Underdeck
- Internal Diaphragm
- Wall
- Typical Joint with Leakage
Analysis findings:

Adequate Load Carrying Capacity

Leaking joints

Durability Results:
- High Chloride content
- Low freeze-thaw performance
- Cores indicate good strength

Live Load: Moving Loads
Dead Load: Permanent Loads
Inspection Findings
• No immediate safety issues
• Durability concern due to high chloride penetration and poor freeze thaw results
• Prevalent joint leakage
• Columbia Heights deck need monitoring
• Loss of façade exposes structure to the elements

Bottom line
• Condition slightly better than anticipated - concrete is good
• Rehabilitation/replacement project must begin now to ensure long-term safety and avoid service disruptions in the 10-12 yrs
• Inspection findings will provide design team with critical information
WHERE WE ARE NOW

- Consultant selection
- Inter-agency coordination with transportation partners
- Traffic data collection and modeling
TRAFFIC STUDY

Project Area
• Detailed Data Collection of traffic patterns, lanes, signals etc.
• Provide baseline information for Design Team
• Thorough understanding of local traffic pattern
• Data collection on-going

Model Development
• Create model to reflect regional traffic pattern
• Combine data from above with other regional information
• Model will assist in decision making for construction staging and permanent configuration
Detailed traffic data in project vicinity.
Compilation of data for regional model.

Similar to Manhattan (previously completed)
ANTICIPATED PROJECT DESIGN SCHEDULE

Design Proposals Review/Selection On-going
Environmental Review/Design Start Early 2017
Alternative Analysis/Draft EIS 2018
Preliminary Design Completion 2019

Decision Point – Design/Build or Design-Bid-Build

DESIGN-BID-BUILD Vs. DESIGN-BUILD

Owner/Agency

Designer

Owner/Agency

Contractor

Owner/Agency

Pre-Designer

Design-Build Entity
ANTICIPATED PROJECT SCHEDULE

Traditional Design Bid Build

Design Build

*Team consists of Designer and Contractor
Dear Commissioner Driscoll:

We write to ask that the State contribute 38% of the total estimated cost for the Brooklyn Queens Expressway (BQE) Bridge reconstruction project on Interstate 278 (I-278). This funding is necessary for the rehabilitation, reconstruction, and replacement of 1.5 miles of the BQE from Atlantic Avenue to Sands Street.

The BQE is a vital connection for the New York City metropolitan area, carrying more than 190,000 vehicles per day. The 1.5 miles between Atlantic Ave. and Sands St. is supported by 21 bridges and a 0.4 mile portion is comprised of a Triple Cantilever structure. According to NYCDOT, the total estimated cost of the project is $1.7 billion. A 38% contribution would cover $659 million of this cost.

This contribution level would be consistent with what NYCDOT has said the State has traditionally funded for construction work on City-owned portions of the highway system in New York City, including the Belt Parkway over the Ocean Parkway project, and for protection of the FDR Drive against marine borers.

The City and State have already invested billions of dollars in other portions of the BQE, including the Kosciusko Bridge. This section of the BQE, as described by NYSDOT, “is a critical link of I-278, which is the sole interstate facility in Brooklyn connecting the Robert Kennedy Memorial Bridge (previously named the Triborough Bridge), the Bronx and other points to the east, and the Gowanus Expressway, Staten Island, New Jersey and other points to the west.” Comprehensive investment, including in this portion, is critical to ensuring the BQE can continue to serve New Yorkers as it has done for decades.

We believe the State should contribute to the cost for reconstruction of this portion of the BQE. Thank you for your attention to this matter. Please contact Senator Squadron’s office at 718-875-1517 or squadron@nysenate.gov with any questions.

Sincerely,

Daniel Squadron
State Senator

Martin Malave Dilan
State Senator

Martin Golden
State Senator

Roxanne J. Persaud
State Senator

Jesse Hamilton
State Senator

Velmanette Montgomery
State Senator

Kevin Parker
State Senator

Diane Savino
State Senator
Thank You!

For questions and concerns:

Email: BQEAAtlantictoSands@dot.nyc.gov

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BQE Triple Cantilever Project Update