The Brooklyn-Queens Expressway
Atlantic Avenue to Sands Street Project

Commissioner Polly Trottenberg
Chief Bridge Officer Bob Collyer
Program Manager for BQE Tanvi Pandya

Public Meeting
September 27, 2018

https://www.bqe-i278.com/
Robert Moses built the BQE beginning in 1944, intended to connect the Gowanus Parkway and RFK Bridge.

The Triple Cantilever, a unified structure with two levels of traffic and Promenade, was a concession to Brooklyn Heights community groups, after they rejected the original plan for a standard six-lane highway, which ran through many other Brooklyn neighborhoods.
<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td>NYSDOT convenes Design and Construction Workshop</td>
</tr>
<tr>
<td>2009</td>
<td>NYSDOT identifies six tunnel alignments</td>
</tr>
<tr>
<td>2010</td>
<td>NYSDOT study ends without selection of a preferred alternative</td>
</tr>
<tr>
<td>2011</td>
<td>NYSDOT suspends environmental process</td>
</tr>
<tr>
<td>2012-2013</td>
<td>Ongoing NYSDOT &amp; NYCDOT project discussions</td>
</tr>
<tr>
<td>2014</td>
<td>NYCDOT puts first capital funds into project and begins studies</td>
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<tr>
<td>2015</td>
<td>NYCDOT conducts charrette with experts from across the country</td>
</tr>
<tr>
<td>2016</td>
<td>NYCDOT performs Tunnel Feasibility Study and Origin &amp; Destination Study</td>
</tr>
<tr>
<td>2016-2017</td>
<td>NYCDOT conducts In-Depth Inspections</td>
</tr>
<tr>
<td>2026</td>
<td>Trucks will need to be removed from BQE due to deterioration</td>
</tr>
<tr>
<td>2036-2040</td>
<td>All vehicles will need to be removed from BQE due to deterioration</td>
</tr>
</tbody>
</table>
Project Concepts

• Since 2014, NYCDOT has evaluated how best to move forward by conducting several key studies. In 2018, the City received Design-Build authority from the State, providing the opportunity for a more innovative and efficient project.

• NYCDOT has pursued this project, focusing on several assumptions:
  • Maintain the existing traffic capacity and local connections in order to minimize congestion and safety impacts on local streets and regional transportation network.
  • Rebuild in generally the same footprint, given the surrounding geographic constraints (bridges and other infrastructure, historic Brooklyn Heights, Brooklyn Bridge Park, etc).
  • Given that this is a City of New York project, we are operating under the constraints of local control. For example, City roads and bridges are not tolled, like those of Port Authority and MTA.
  • We expect a larger conversation about changing some of these assumptions, including options that require State agency participation, a no-build concept, etc.
**Project Corridor**

Due to the size of video file please click here to access the video:

https://youtu.be/frweBVvDIW8?t=236

Video starts: 3:56 and ends: 5:34
In-Depth Inspections

Without this project, we anticipate that we will need to close the triple cantilever to trucks by 2026 due to deterioration.
The BQE is one of the most heavily traveled roadways in New York City, and beyond, with an average daily volume of 153,000 vehicles, including up to 25,000 trucks:

<table>
<thead>
<tr>
<th>Roadway</th>
<th>Vehicles</th>
</tr>
</thead>
<tbody>
<tr>
<td>I-93 (the Big Dig, Boston)</td>
<td>200,000</td>
</tr>
<tr>
<td>Queensboro Bridge</td>
<td>170,000</td>
</tr>
<tr>
<td><strong>BQE:</strong></td>
<td><strong>153,000</strong></td>
</tr>
<tr>
<td>Tappan Zee Bridge</td>
<td>140,000</td>
</tr>
<tr>
<td>FDR Drive</td>
<td>136,000</td>
</tr>
<tr>
<td>Cross Bronx Expressway</td>
<td>115,000</td>
</tr>
<tr>
<td>Alaskan Way Viaduct (Seattle)</td>
<td>110,000</td>
</tr>
<tr>
<td>West Side Highway</td>
<td>105,000</td>
</tr>
</tbody>
</table>

Key freight route: peak volume of up to 1,100 trucks per hour (500-600 per direction) during weekday mornings.
What Have We Learned?

**Staten Island-Bound**
Over 90% of truck traffic (320 vehicles per hour) has a destination within NYC
Over 80% (270 vehicles per hour) of these trucks serve Brooklyn

**Queens-Bound**
Over 70% of truck traffic (285 vehicles per hour) has a destination within NYC
Over 30% (120 vehicles per hour) of these trucks serve Brooklyn
Local Traffic Without The BQE

BQE traffic rerouting to:
• Hicks Street
• Court Street
• 3rd & 4th Avenues
• Flatbush Avenue
• Atlantic Avenue
• Adams Street
• Tillary Street
• Henry Street
• Furman Street
• Cadman Plaza
• Flushing Avenue

Traffic volumes triple on many streets, which are already at capacity.
What Have We Learned?

Tunnel Obstacles

- Only one alignment does not conflict with subway and water tunnels and bridge foundations.
- Feasible cross-section allows only two lanes of traffic in each direction.
- Requires that we also maintain the existing BQE structure:
  - To accommodate existing volume
  - To provide connectivity to local exits (about 50% of traffic uses exists that a tunnel would not serve)
- Tunnels are prohibitively expensive and prone to massive cost overruns and delays.
- Property seizure at entrance, exit, and ventilation shafts.
- Tunnel boring technology is imperfect and is particularly risky under historic Brooklyn neighborhoods – settling and cracked foundations, etc.
What Have We Learned?

DOT studied the feasibility of using the already congested Belt Parkway (over 140,000 vehicles per day) as an alternate truck route during BQE construction, but making the Belt safe for trucks could take up to $3 billion and 10 years to fix:

- Bridges over the Belt, some of which carry subway lines, are too low for trucks
- Bridges that carry the belt were not built to carry heavy vehicles, requiring major construction projects to remedy
- Narrow lane widths and tight turns at ramps are unsafe for trucks
Existing Conditions

- Limited vertical clearance
- Non-standard lane widths
- Lack of emergency access due to limited shoulders
- Unable to carry load in near future
- Vibrations to adjoining buildings due to cantilever
- Promenade and roadway are the same structure
- Geometry constraints to operational & safety improvements
- Crash rate exceeds, in places, up to 10 times the statewide average

Triple Cantilever Cross Section
Re-Envisioning The BQE

- Improved vertical clearance at Columbia Heights
- Improved bike/pedestrian access
- Study new pedestrian bridge to Brooklyn Bridge Park
- Improved geometry and widened lanes
- Minimized vibrations
- Possible new connections from bridges to BQE
- Improved Brooklyn Heights Promenade
- Improved bike/pedestrian access to Brooklyn Bridge Park
- Safer Atlantic Avenue Interchange
- Unified Van Voorhees Park
After years of rallies, letter writing, and trips to Albany, the State Legislature authorized Design-Build for the BQE Atlantic to Sands Project.

Thank you to all of our supporters in Albany, the City Council, and all the stakeholders that helped us pass this critical legislation.

Design-Build encourages high quality projects by providing more flexibility to innovate, while still accomplishing set project goals.

Design-Build and the Environmental Process

The design-build process is intended to foster flexibility and creativity.

The environmental review process will consider one or more reasonable alternatives that would represent a conservative “design envelope” presenting the greatest potential environmental impacts, allowing room for innovation.
Construction Methods

• In order to accelerate the project timeline and work around existing constraints and maintain traffic, the BQE project will require a **temporary roadway**.

• The type of temporary roadway we use determines:
  – The form of the final structure – what do we end up building?
  – The footprint or envelope we study during the environmental process

• **We have evaluated two potential methods:**
  1. Traditional Approach – Incremental Lane-by-Lane Construction
  2. Innovative Approach – Temporary Elevated Roadway
Traditional: Incremental Method/Lane by Lane

Due to the size of video file, please click here to access the video:
https://youtu.be/frweBVvDIW8?t=17m16s
Video starts: 17:16 and ends: 20:00
The Incremental Approach allows us to construct a safer highway that meets current standards, but constrains the larger community improvements and innovation

- Widened lanes, added shoulders, other safety improvements
- Mostly eliminates vibrations
- Promenade would be rebuilt at the existing width
- Includes substantial and rolling promenade closures; tree removal anticipated (landscaping to be restored)
- Some enhanced pedestrian and bike connectivity and access to Brooklyn Bridge Park
- Does not allow for new direct connections from the Brooklyn and Manhattan Bridges to the BQE without extensive additional closures
“Cattle chute” driving conditions

- Congestion and safety concerns
- Any crashes in the narrow lane would have significant impacts on traffic
- Slower speeds, with back-ups throughout Brooklyn (potentially bleeding into Queens and Staten Island)
- About 12,000 vehicles unable to process per day, potentially resulting in up to a 3-mile impact
- Cost and on-time completion far less certain
- Vertical clearance improvements limited
- Final configuration leaves column in front of 1 Brooklyn Bridge Park
- More full weekend closures (approx. 24 weekends) and overnight lane closures (over 4.5 years)
- Reliance on greater level of overnight activity creates noise issues
- Delays in re-opening lanes for daytime hours are possible, and could result in up to a 12-mile impact
Innovative Approach: Temporary Elevated Roadway

Due to the size of video file please click here to access the video: https://youtu.be/frweBVvDIW8?t=23m36s
Video starts 23:36 and ends 25:36
Temporary Elevated Roadway: Staging

Due to the size of video file please click here to access the video:
https://youtu.be/frweBVvDlW8?t=25m37s
Video starts: 25:37 and ends: 28:10
Temporary Elevated Roadway: Columbia Heights

Due to the size of video file please click here to access the video:
https://youtu.be/frweBVvDlW8?t=28m11s
Video starts at 28:11 and ends at 30:44

Stage 1
The Temporary Elevated Roadway concept provides a greater ability to construct a safer highway that meets current standards, as well as opportunity for innovation and generational change in the surrounding area:

• Improve clearances and geometry, wider lanes, provide shoulders
• Benefits for those living adjacent to the BQE: eliminates vibrations and minimizes noise
• Brooklyn Promenade width can increase, if desired, by approximately 35’
• Greatest opportunity for aesthetic improvements to final structure
• Enhance pedestrian and bike connectivity and access to Brooklyn Bridge Park
• Only option that allows new direct connections from the Brooklyn and Manhattan Bridges to the BQE without additional extensive closures
The Temporary Elevated Roadway provides numerous benefits during construction:

- Shortest anticipated construction duration (approx. 6 years to substantial completion)
- Greatest certainty of project cost and on time completion
- Fewest full weekend closures and overnight lane closures
- Avoids the worst traffic backups and diversions onto local streets across a number of Brooklyn neighborhoods including Brooklyn Heights, Cobble Hill, Carroll Gardens, Gowanus, and Sunset Park
- Best experience for drivers during construction – least impact on travel time and reliability

However, the trade-off is a temporary six-lane highway at the current Promenade level (for approx. 3 years)

- Much of the Promenade will be closed during construction. Viewing platforms can be created at a number of cross streets.
- Dramatic impact (primarily visual, also noise and access/circulation) for residents and visitors
- Major tree loss for both construction options (tree restoration to follow)
Potential Direct Bridge Connections

Brooklyn Bridge Direct Connection

Close York St. Ramp

New Ramp
Potential Direct Bridge Connections

Manhattan Bridge Direct Connection
# Construction Concept Comparison

<table>
<thead>
<tr>
<th></th>
<th>Temporary Elevated Roadway</th>
<th>Incremental Method</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Anticipated Construction Duration</strong></td>
<td>6 years</td>
<td>8+ years</td>
</tr>
<tr>
<td>(to substantial completion)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Cost and Schedule Risk</strong></td>
<td>$3.2-$3.6 Billion</td>
<td>$3.4-$4 Billion</td>
</tr>
<tr>
<td></td>
<td>Less risk</td>
<td>Far greater risk</td>
</tr>
<tr>
<td><strong>Promenade Closure</strong></td>
<td>Up to 6 Years</td>
<td>Up to 2 years</td>
</tr>
<tr>
<td><strong>Columbia Heights Bridge Closure</strong></td>
<td>Up to 6 Years</td>
<td>2-3 Years</td>
</tr>
<tr>
<td><strong>Opportunity of better overall</strong></td>
<td>Greater</td>
<td>Limited</td>
</tr>
<tr>
<td>aesthetics</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Permanent Property Impact</strong></td>
<td>None anticipated</td>
<td>Permanent columns in front of 360 Furman Street</td>
</tr>
<tr>
<td><strong>Traffic Impacts</strong></td>
<td>Overnight for shorter period</td>
<td>Major impact throughout</td>
</tr>
<tr>
<td><strong>Full Weekend Closures</strong></td>
<td>Approximately 2</td>
<td>Approximately 24</td>
</tr>
<tr>
<td><strong>Direct Bridge Connections</strong></td>
<td>Possible without additional closures</td>
<td>Would require additional full weekend closures</td>
</tr>
</tbody>
</table>
The BQE Envisioned

- Improved vertical clearance at Columbia Heights
- Improved bike/pedestrian access
- Improved geometry and widened lanes
- Study new pedestrian bridge to Brooklyn Bridge Park
- Minimized vibrations
- Possible new connections from bridges to BQE
- Improved Brooklyn Heights Promenade
- Improved bike/pedestrian access to Brooklyn Bridge Park
- Safer Atlantic Avenue Interchange
- Unified Van Voorhees Park

Replacement of the BQE from Atlantic to Sands

Legend
- BQE
- Open Space
Anticipated Schedule & Public Outreach

- Fall 2018 – Continuing public outreach and workshops on construction concepts
  - Construction mitigations
  - Parks and playgrounds
  - Pedestrian and bike safety and connectivity
  - Aesthetics of final structure
- Summer 2019 – Request for Qualifications
  (DB Legislation requires no later than April 2020)
- Late 2019 – Draft RFP (after draft EIS)
- 2018-2020 – National Environmental Policy Act (NEPA) process
- 2020/2021 – Notice to Proceed
- 2026 – Substantial Completion (Temporary Elevated Roadway); 2028 or later (Incremental)
THANK YOU!

https://www.bqe-i278.com/