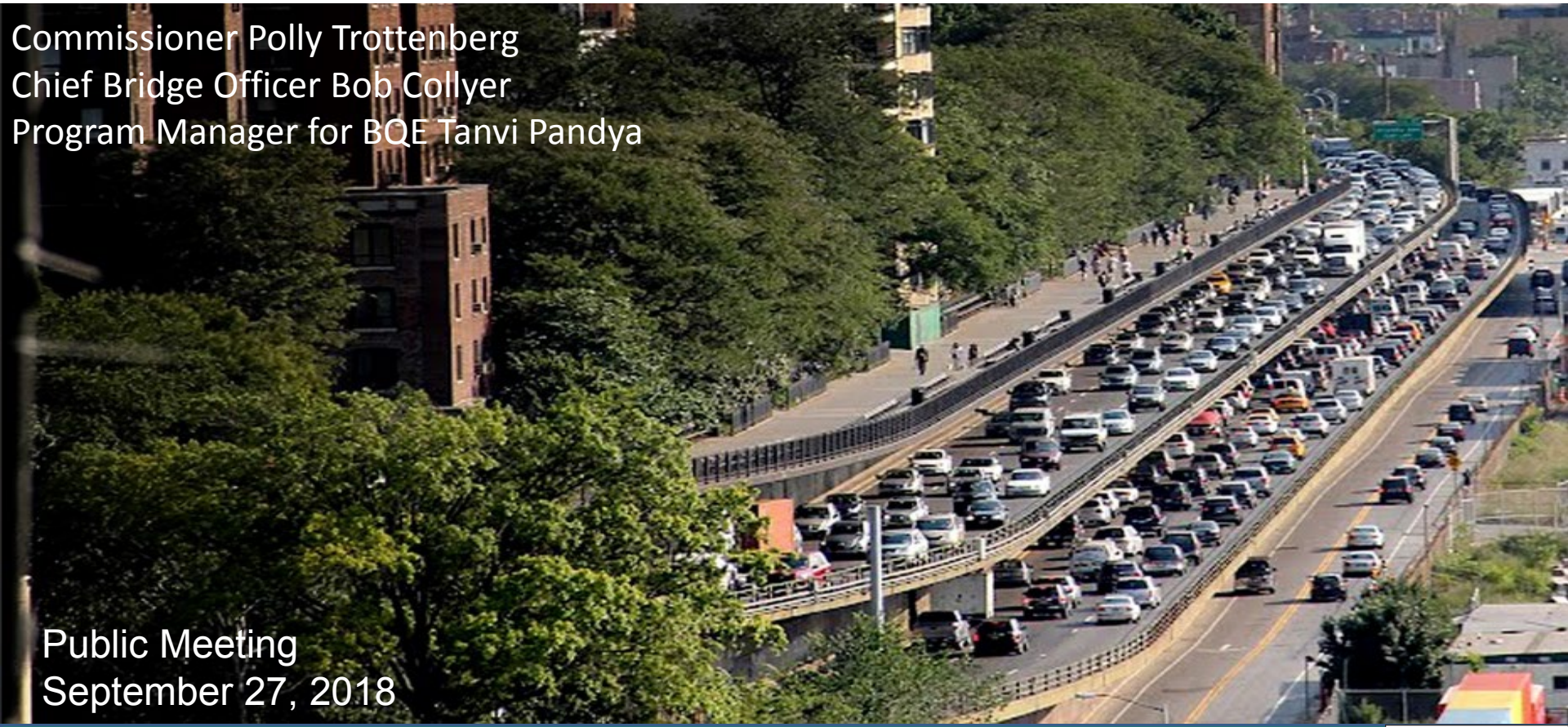
The Brooklyn-Queens Expressway Atlantic Avenue to Sands Street Project



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

Public Meeting
September 27, 2018

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

BQE History

BQE under construction, 1948

- 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.

BQE – Key Dates

2006	NYSDOT convenes Design and Construction Workshop
2009	NYSDOT identifies six tunnel alignments
2010	NYSDOT study ends without selection of a preferred alternative
2011	NYSDOT suspends environmental process
2012-2013	Ongoing NYSDOT & NYCDOT project discussions
2014	NYCDOT puts first capital funds into project and begins studies
2015	NYCDOT conducts charrette with experts from across the country
2016	NYCDOT performs Tunnel Feasibility Study and Origin & Destination Study
2016-2017	NYCDOT conducts In-Depth Inspections
2026	Trucks will need to be removed from BQE due to deterioration
2036-2040	All vehicles will need to be removed from BQE due to deterioration

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/frweBVvDlW8?t=236
Video starts: 3:56 and ends: 5:34

In-Depth Inspections

NEW YORK POST

Trucks may soon be banned from parts of the BQE

By Danielle Furfaro and Khristina Narizhnaya

December 11, 2017

Without this project, we anticipate that we will need to close the triple cantilever to trucks by 2026 due to deterioration.

The BQE Today: Heavy Usage

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:

I-93 (the Big Dig, Boston):	200,000 vehicles
Queensboro Bridge:	170,000 vehicles
BQE:	**153,000 vehicles**
Tappan Zee Bridge:	140,000 vehicles
FDR Drive:	136,000 vehicles
Cross Bronx Expressway:	115,000 vehicles
Alaskan Way Viaduct (Seattle):	110,000 vehicles
West Side Highway:	105,000 vehicles

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

What Have We Learned?

Origin And Destination Study

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

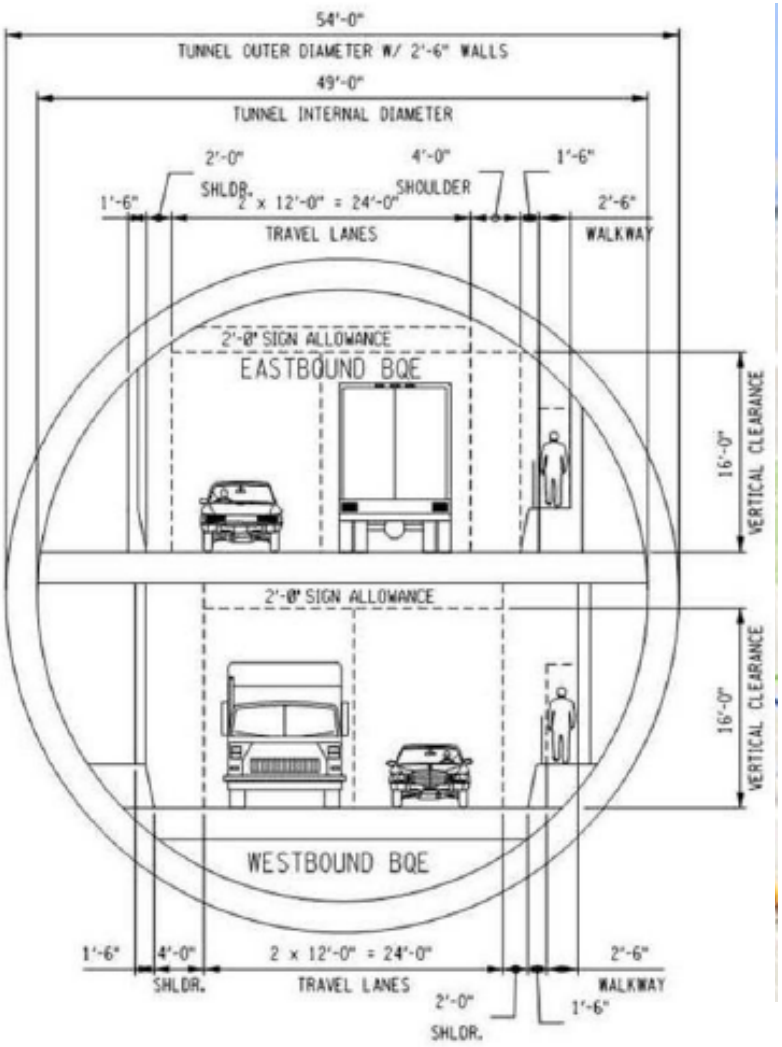
Over 30% (120 vehicles per hour) of these trucks serve Brooklyn

Local Traffic Without The BQE

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?

Belt Parkway Alternative Study

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

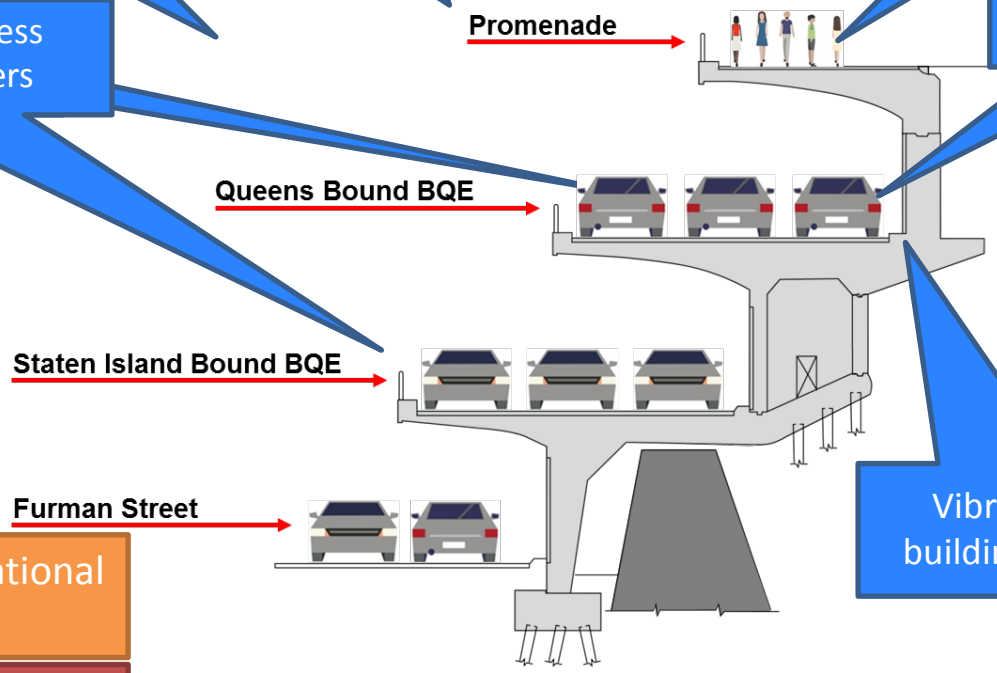
Limited vertical clearance

Non-standard lane widths

Promenade and roadway are the same structure

Lack of emergency access due to limited shoulders

Unable to carry load in near future



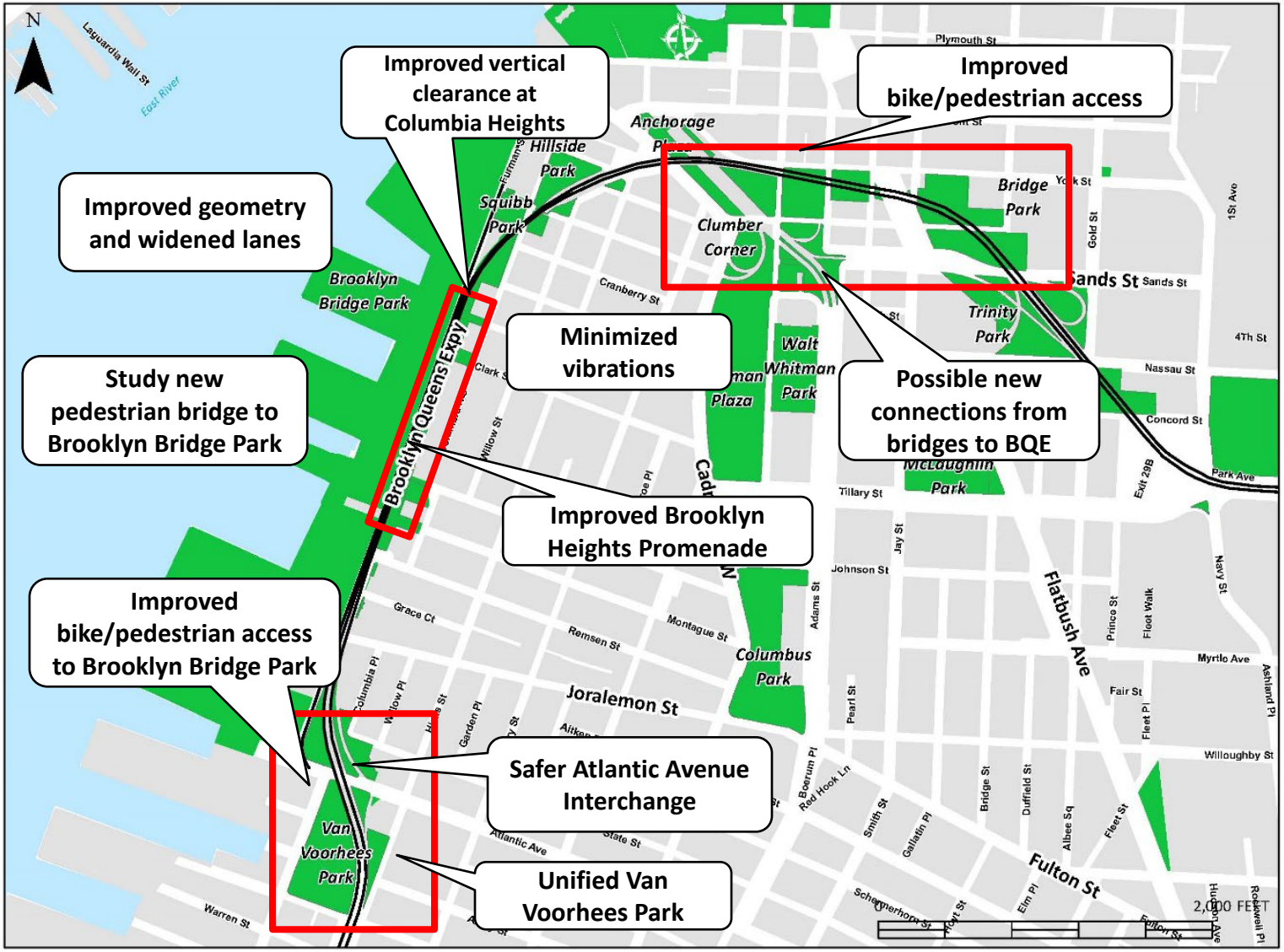
Vibrations to adjoining buildings due to cantilever

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



Design-Build

- 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.

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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

Traditional: Incremental Method/Lane by Lane

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

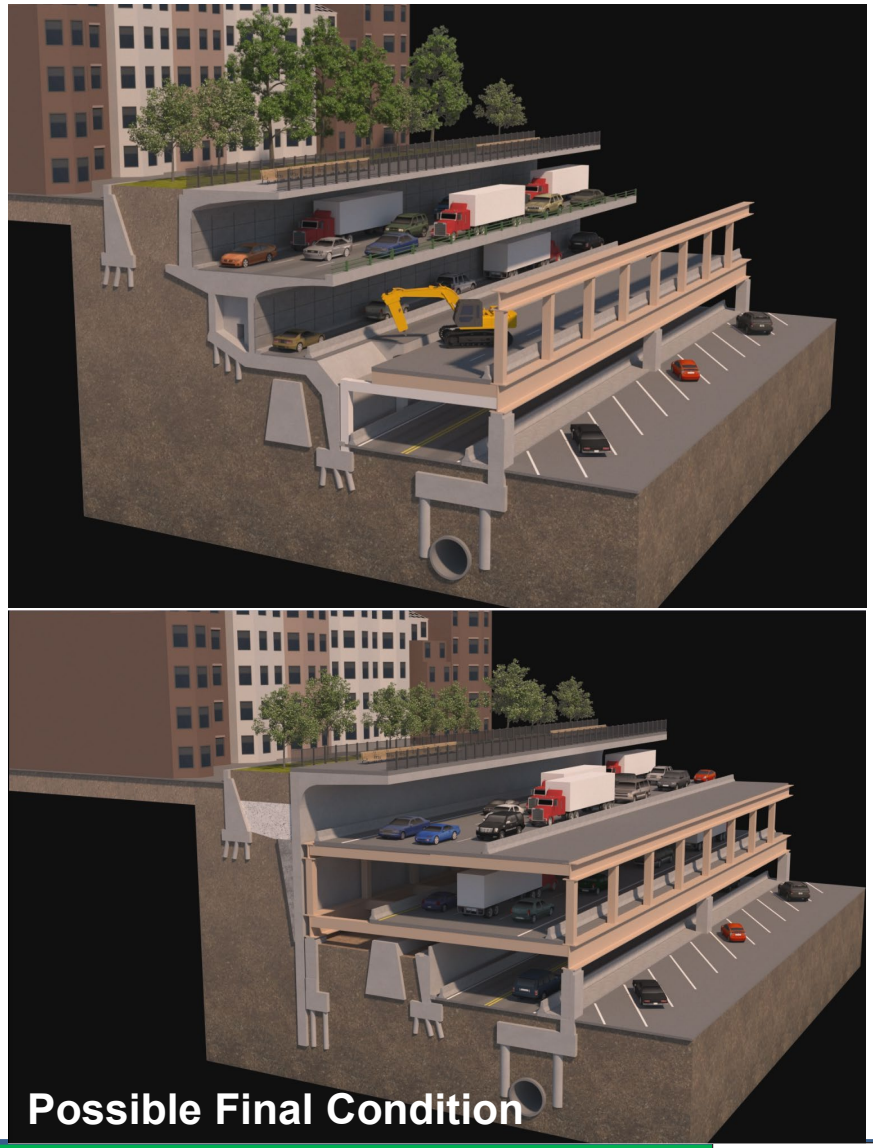
Traditional: Incremental Method/Lane by Lane

"Cattle chute" driving conditions

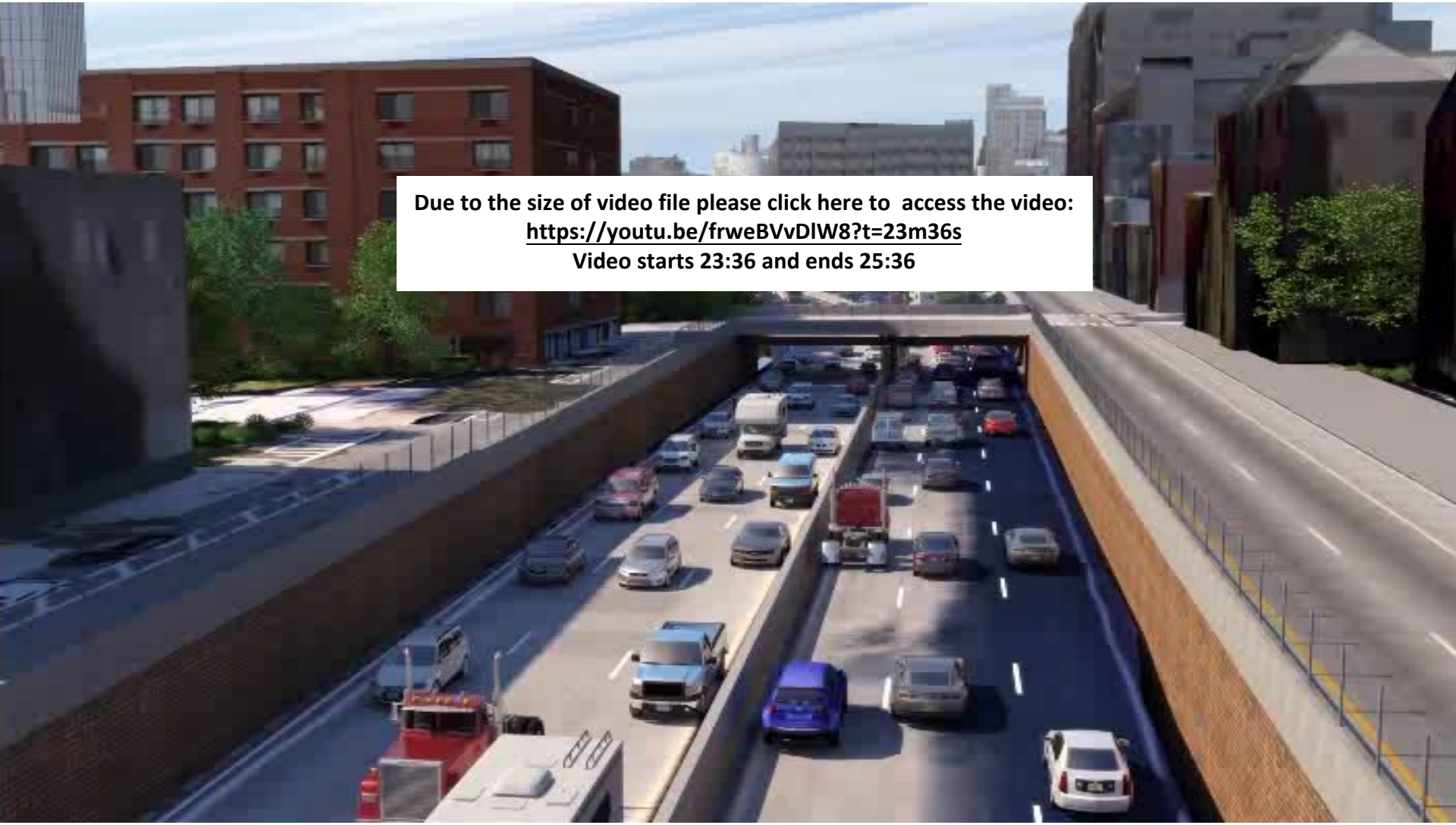
- Congestion and safety concerns
- Any crashes in the narrow lane would have significant impacts on traffic
- Slower speeds, with back-ups throughout Brooklyn (potentially bleeding into Queens and Staten Island)
- About 12,000 vehicles unable to process per day, potentially resulting in up to a 3-mile impact

Traditional: Incremental Method/Lane by Lane

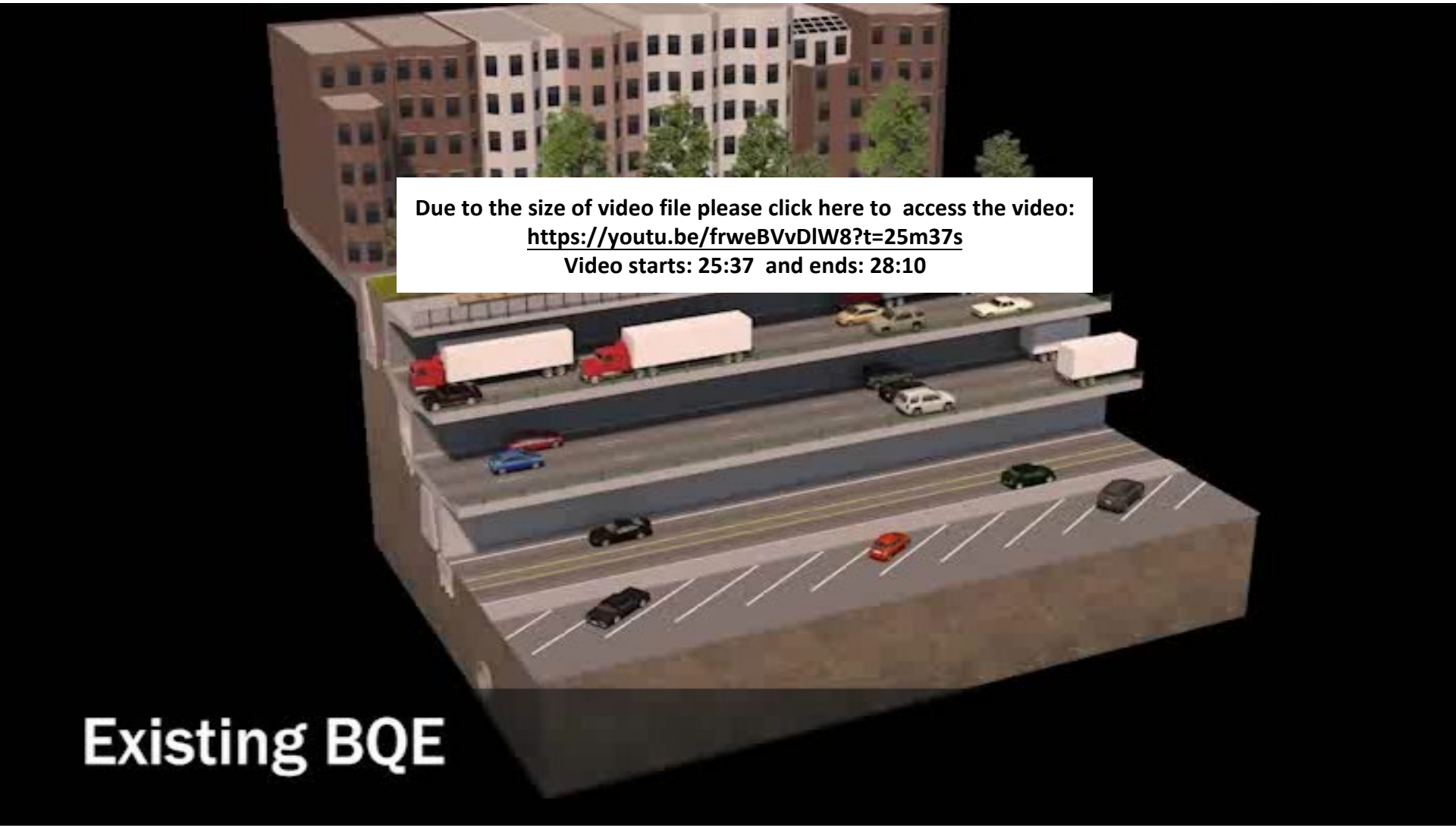
- Cost and on-time completion far less certain
- Vertical clearance improvements limited
- Final configuration leaves column in front of 1 Brooklyn Bridge Park
- More full weekend closures (approx. 24 weekends) and overnight lane closures (over 4.5 years)
- Reliance on greater level of overnight activity creates noise issues
- Delays in re-opening lanes for daytime hours are possible, and could result in up to a 12-mile impact



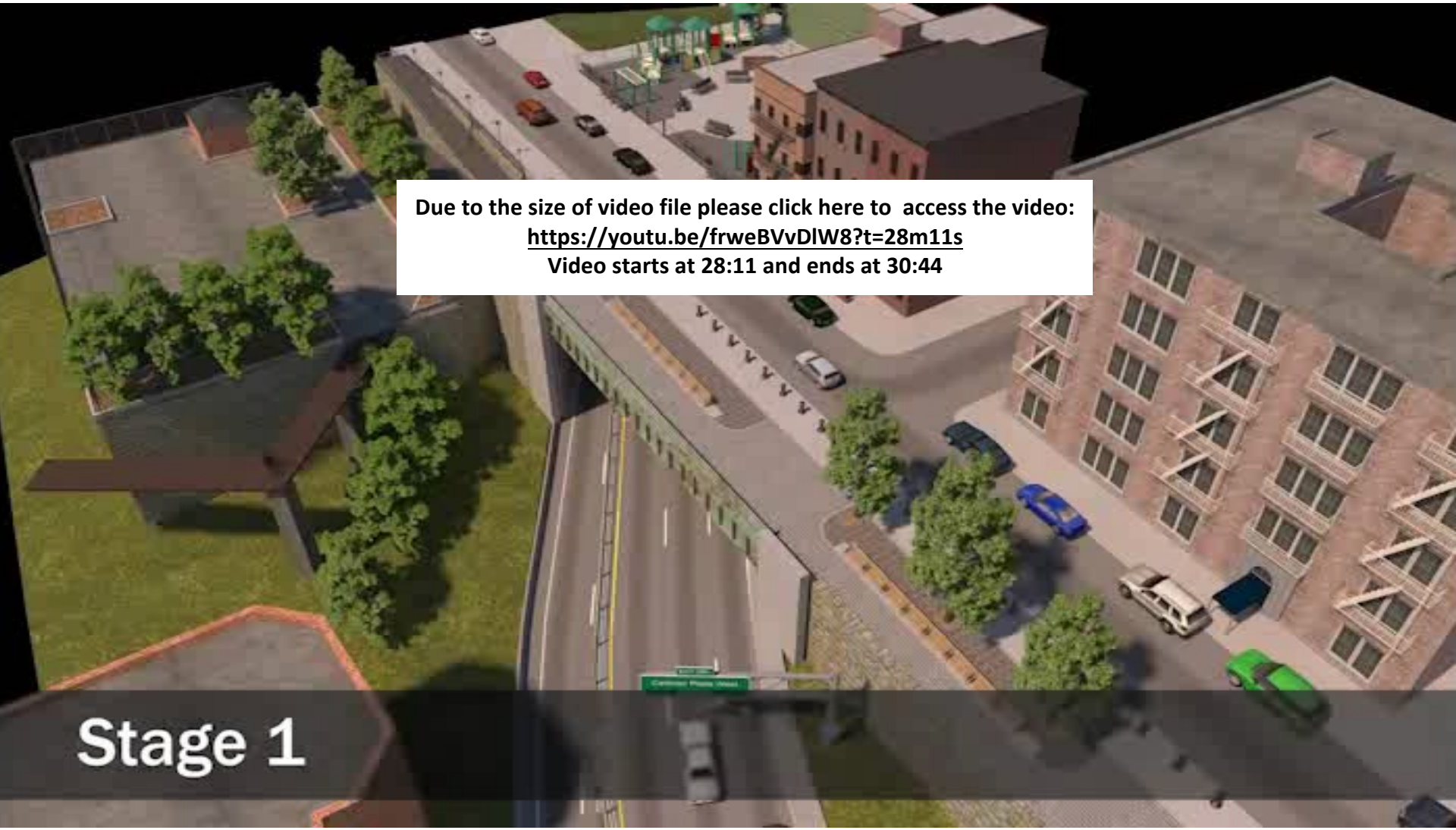
Innovative Approach: Temporary Elevated Roadway



Temporary Elevated Roadway: Staging



Temporary Elevated Roadway: Columbia Heights



Temporary Elevated Roadway

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

Temporary Elevated Roadway

The Temporary Elevated Roadway provides numerous benefits during construction:

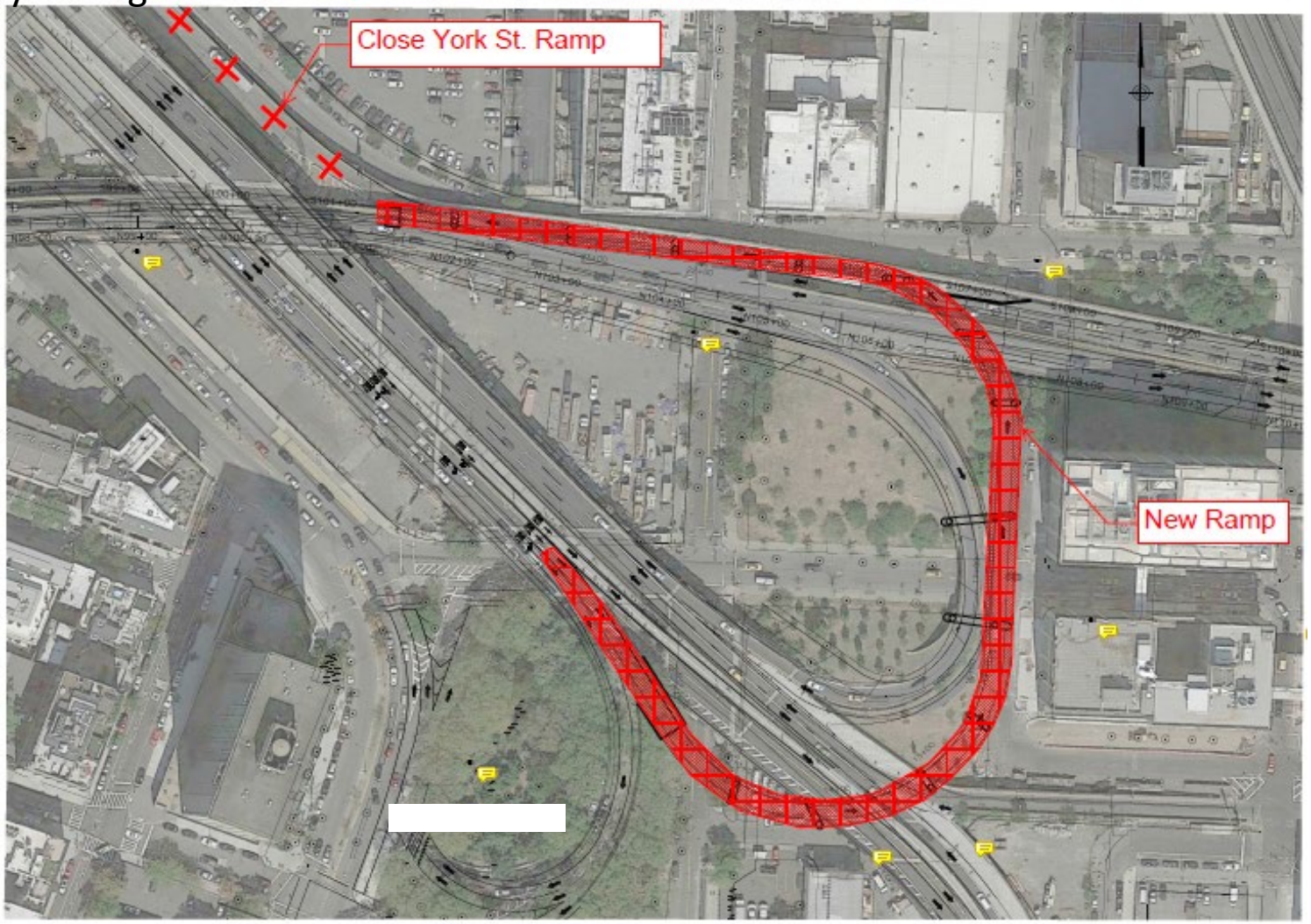
- Shortest anticipated construction duration (approx. 6 years to substantial completion)
- Greatest certainty of project cost and on time completion
- Fewest full weekend closures and overnight lane closures
- Avoids the worst traffic backups and diversions onto local streets across a number of Brooklyn 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)

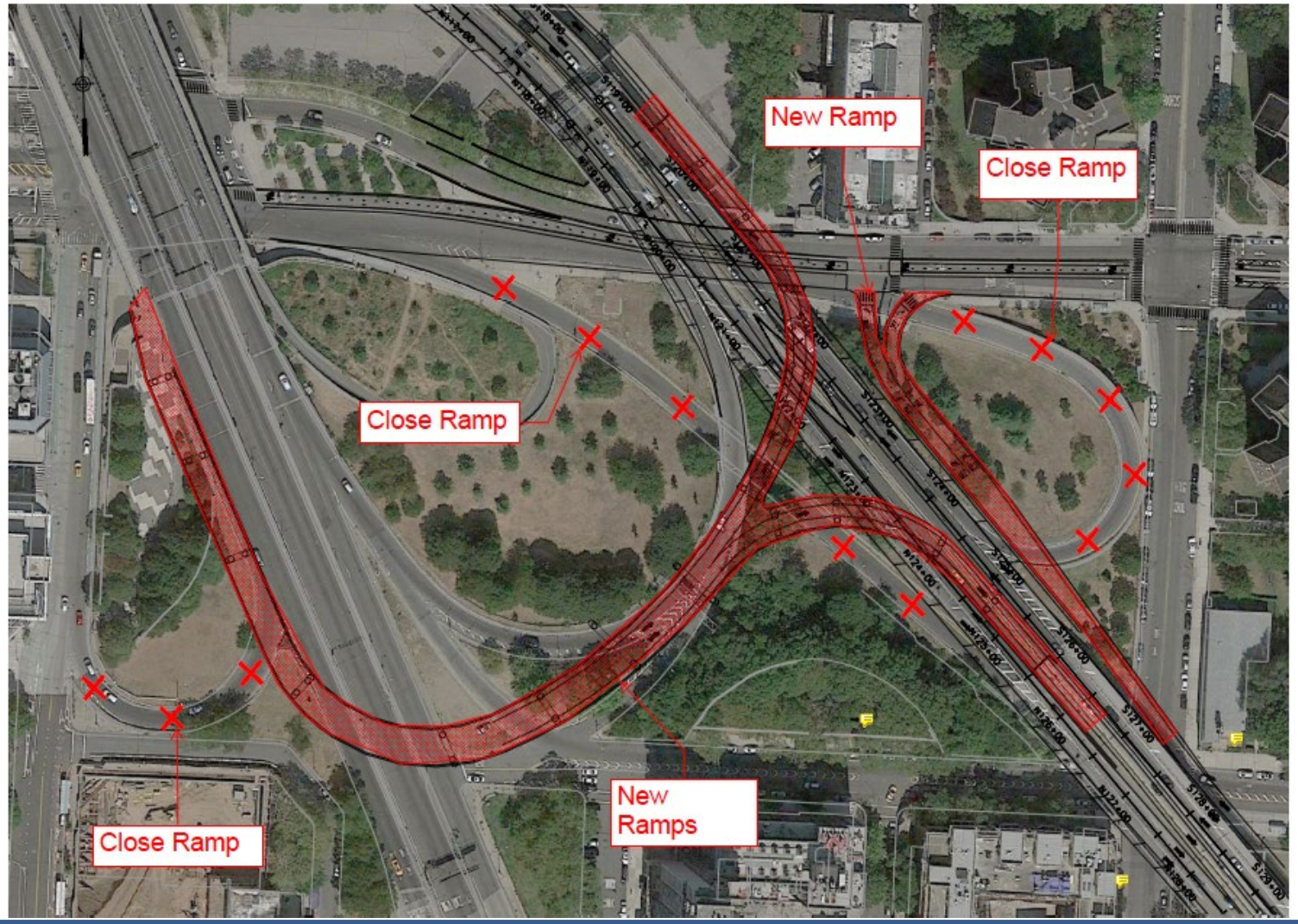
Potential Direct Bridge Connections

Brooklyn Bridge Direct Connection



Potential Direct Bridge Connections

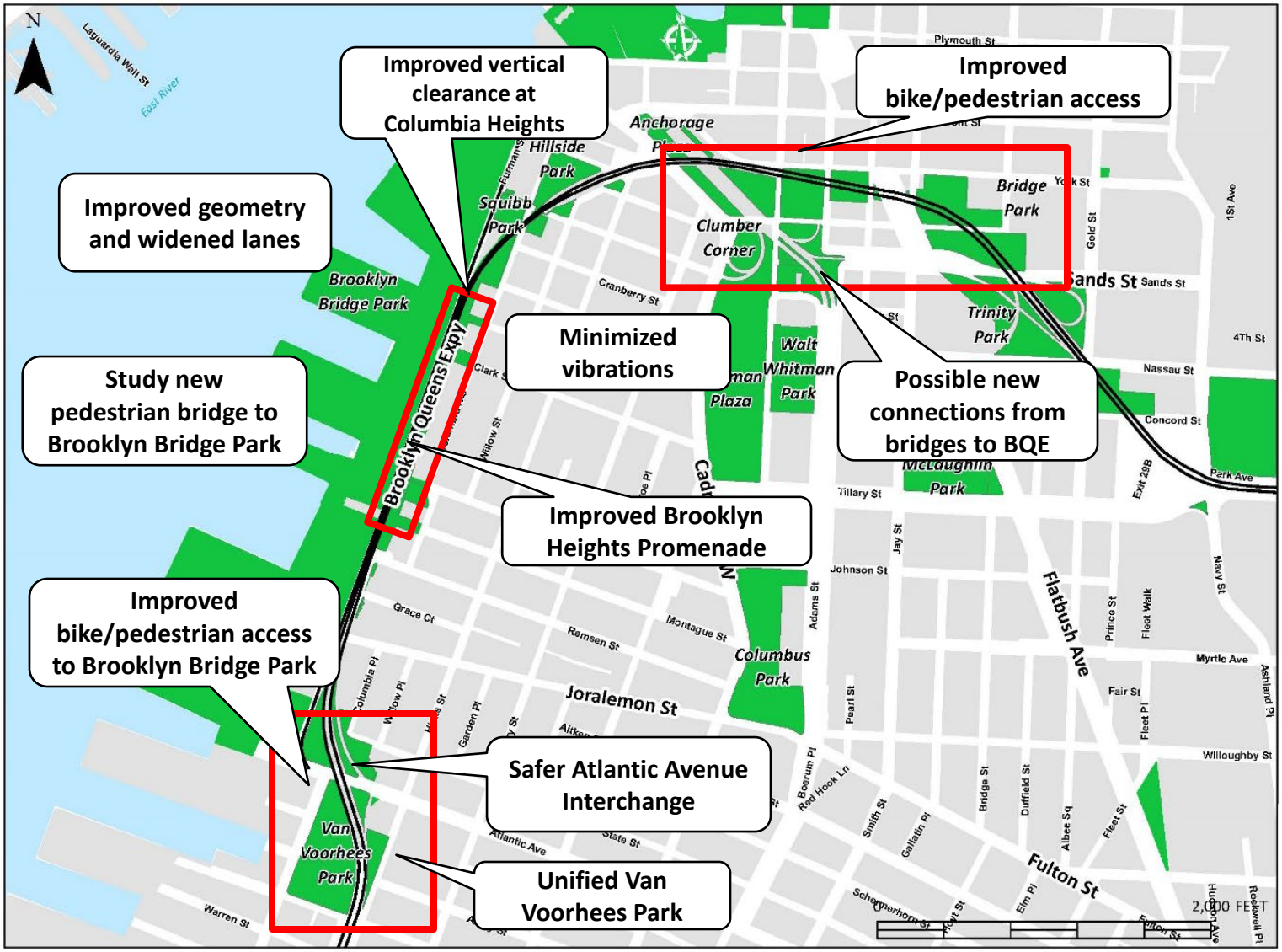
Manhattan Bridge Direct Connection



Construction Concept Comparison

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

The BQE Envisioned



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/