



**Adam Giambrone**  
*BQX, Director*  
*New York, New York*



2018 Rail Conference

# Key Presentation Take-Aways

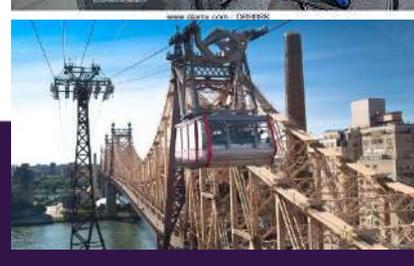
- Policy Context
- Why Explore the BQX?
- How can the BQX happen?
- Context



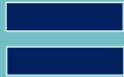
# Policy Context

The City of New York is looking to implement modes that it has control of

- The City of New York is moving to consider new modes of transit to help deal with transportation issues of a growing city
- LRT/Streetcar is the most recent mode that the City is looking to implement or expand.



# Why Explore the BQX?



- Home to over 400,000 people (including 40,000 NYCHA residents)
- 56% of rental stock is public, rent-stabilized, rent-controlled, or income-restricted



- Transit-oriented development & safer street design encourages walkable neighborhoods and safer streets



- Create connections to job hubs at Long Island City, Cornell Tech, the Navy Yard, Brooklyn Army Terminal, and the Brooklyn working waterfront

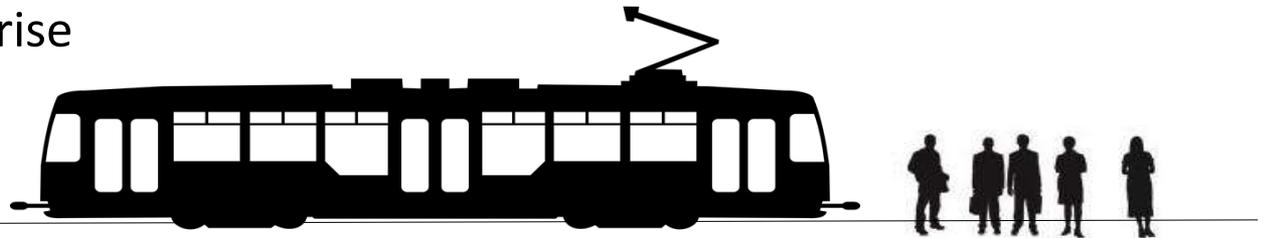


- Transportation connectivity
  - 10 ferry stops
  - 30+ different bus routes
  - 15+ different subway lines
  - 100+ CitiBike stations

# Why Explore the BQX: Project Goals

Provide a modern, efficient, state-of-the-art transit line to support the growing Brooklyn and Queens waterfront and improve north-south connections.

- Increase connectivity and provide for easier, safer, and faster transit service
  - Serve new employment hubs
- Enhance economic development and preserve community character
  - Accommodate and serve residential and employment growth
  - Improve streetscapes and neighborhoods amenities
- Provide sustainable solutions and resilient transit options
  - Provide a transit system that is resilient against climate change and sea level rise

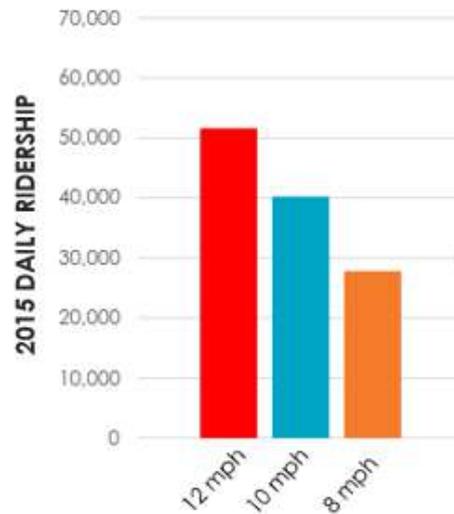


# How can the BQX happen?

## Criteria to make BQX work

- Offer reliable and regular service: **5-min peak headways** /10-min off-peak headways
- Improve travel times in the corridor
- Stations should be created with approx. **½ mile spacing**
- Initial **cost estimate: \$2.5-\$3B+**
- Annual **Operating Cost: \$30-40M** (including subsidy)
- Refined routing can lead to **higher property values** that can be captured to fund construction
- Comparably short **implementable time frame**

## Speed is key to success



- **12 mph** operational speed is a key operational goal
- If offering 12 mph service, ridership models project up to **88,000 daily riders in 2050**.

## Features and actions necessary to meet BQX success criteria:

- Route must **serve strong trip generators** including transit hubs, dense neighborhoods and employment centers
- Removal of parking and/or vehicular lanes to create **physically separated/dedicated ROWs**
- **Minimize turns** and maintain **half-mile stop spacing**
- Operations cannot be affected by normal utility maintenance – making **utility relocation necessary**
- **Priority for transit vehicles** at intersections
- Quiet, accessible **electrically powered modern urban LRT/streetscars** running on embedded track

# Context

BQX would be one of the top 5 largest LRT/Streetcar lines in the United States on opening day and one of the larger lines in the world

- **BQX would be one of the largest and most complex capital project in recent City history**
  - It compares in complexity only to the large multi-decade water tunnel projects oversaw by DEP
- **BQX would be the first large rail transit capital project in over 60 years overseen by the City**
  - The 1958 – Queens Blvd Line subway extension was the last big rail expansion the City directed and managed
- **BQX would be the largest and most complex Tax Increment Financing district**
  - The extension of the 7 train is the only competitor on size and scope, but was a green field site verses the BQX corridor which is more complex because it goes through many relatively stable residential neighborhoods
- **BQX would be the largest transit P3 in the Unites States**
  - The only other comparisons are Denver's Eagle Line and Baltimore's Purple Line

# Proposed BQX Alignment



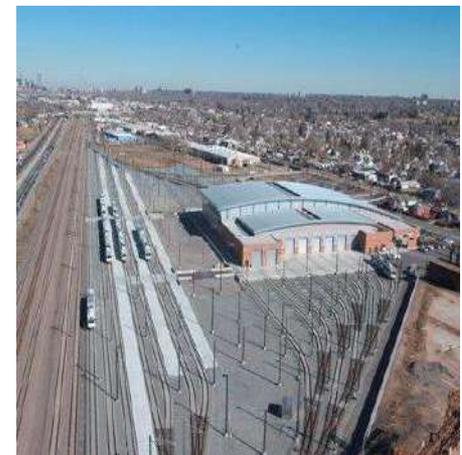
# Maintenance + Storage Facility

## Challenges

- Need to identify 8-10 acres in size in close proximity to the alignment in a physically-constrained geography and expensive real estate market
- Sites available will have remediation issues (cost + time)
- Need to identify properties which will allow for timely and affordable acquisition (real estate value consideration)
- Need for site which allow for multiply entry tracks

## Solutions/Options

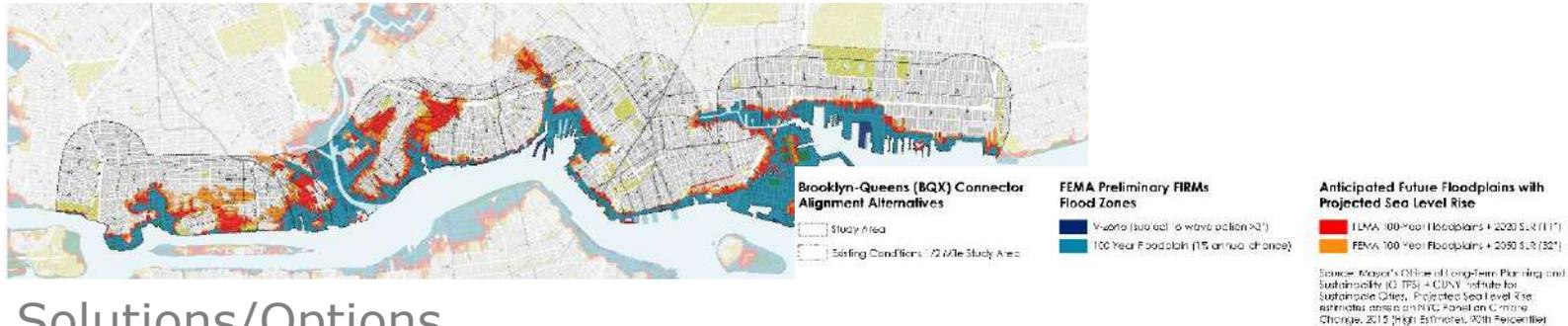
- May require separate parcels of land to meet required area for facility
- Prioritize city-owned land for maintenance facility sites
- Creative site design
  - Utilizing multi-story facilities
  - Creative track geometry



# Resilience

## Challenges

- Approximately 18% of the Study Area falls within FEMA's 100 year flood zone (2015 pFIRM)



## Solutions/Options

- Coordination with ORR to remain consistent with ongoing resilience initiatives
- Resilient design approach
  - Power systems will be raised above the peak flood level mark
  - Maintenance yards will be fortified
  - Other design treatments will be considered to ensure that BQX can withstand future storm events

# Narrow Roadways

## Challenges:

- Accommodating streetcar may create major impacts on use of existing local streets
- Removal of parking and/or travel lanes may be required

## Solutions/Options:

- Acceptance of new mobility trends



# Tight Curves

## Challenges

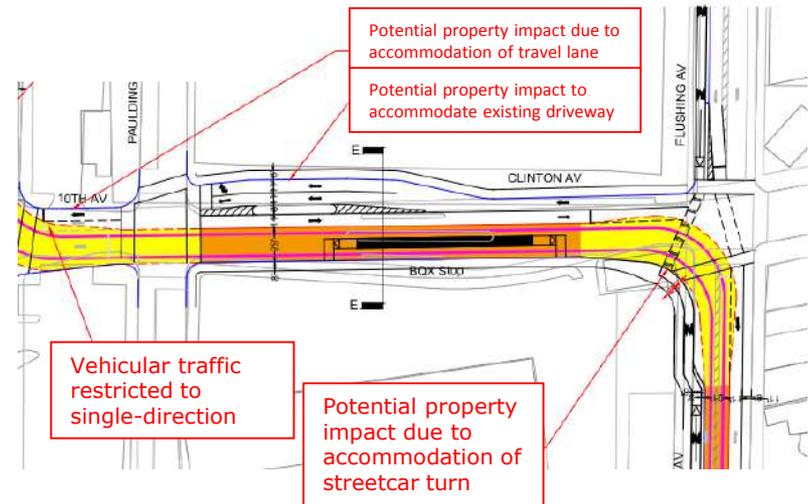
- Existing roadway geometry necessitates tight turning radii (under 50 feet)
- Turns would reduce travel speed and passenger comfort

## Solutions/Options

- Acquisition of adjacent property to accommodate turns
- Specialty vehicles which can navigate tighter curves
- Reduce sidewalk widths (at corners)



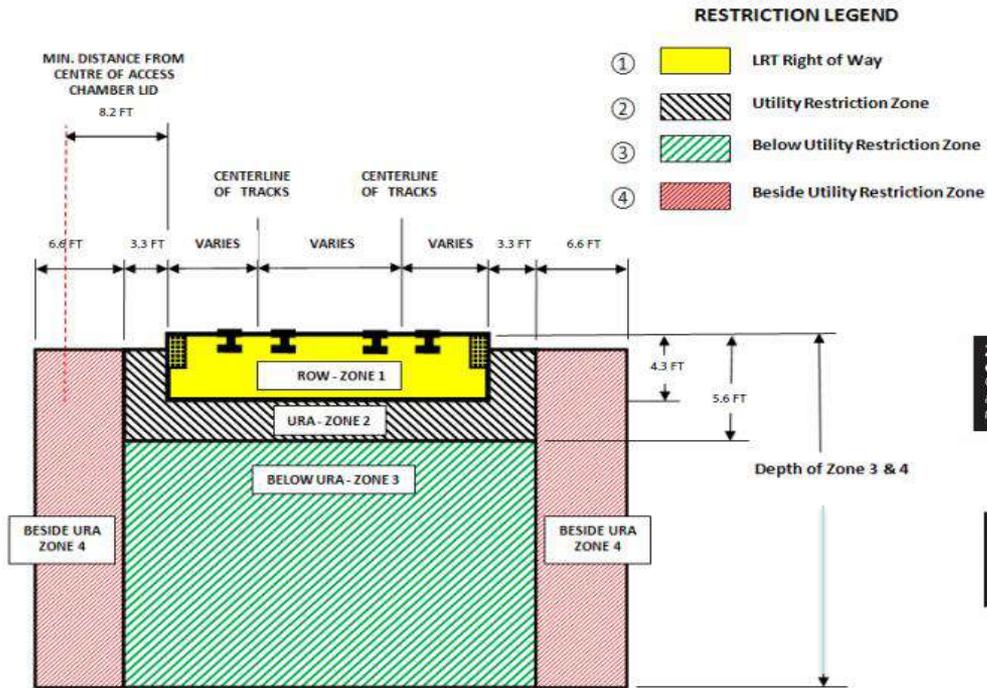
Sidewalks can effectively be widened by utilizing a building corner cut-out treatment (above)



# Berry Street Transit Way



# Utilities Relocation



**Total utilities relocation cost: \$500M-\$800M**



## Zone 1-4 Relocation Protocol

- **Zone 1:** track structure for the streetcar
- **Zone 2:** area immediately below the track structure
- **Zone 3:** area directly below Zones 1 and 2
- **Zone 4:** immediately adjacent to the three other zones

**Private Utilities**  
15 miles, \$225M+

**Public Utilities**  
15 miles, \$500-\$600M+

# 21<sup>st</sup> Street Designated ROW



# Joralemon Street



# New York City Ask APTA to Organize a Peer Review of

Looking to ensure concept and proposed implementation is strong

**BQX** Making People Connecting Communities

**APTA**

**AMERICAN PUBLIC TRANSPORTATION ASSOCIATION**

**New York City  
Dept. of Transportation**

**Brooklyn Queens Streetcar Project (BQX)**

**A Peer Review Provided by the  
American Public Transportation Association  
(Provided through APTA's subsidiary,  
the North American Transit Services Association)**

**September 29, 2017**

**AMERICAN PUBLIC TRANSPORTATION ASSOCIATION**

**APTA**  
AMERICAN  
PUBLIC  
TRANSPORTATION  
ASSOCIATION

1

# Bringing together International and American Talent

New York wanted both experience from across North America as well as from large cities elsewhere with urban LRTs

**BOQ** Making People Connecting Communities

**PEER REVIEW TEAM**

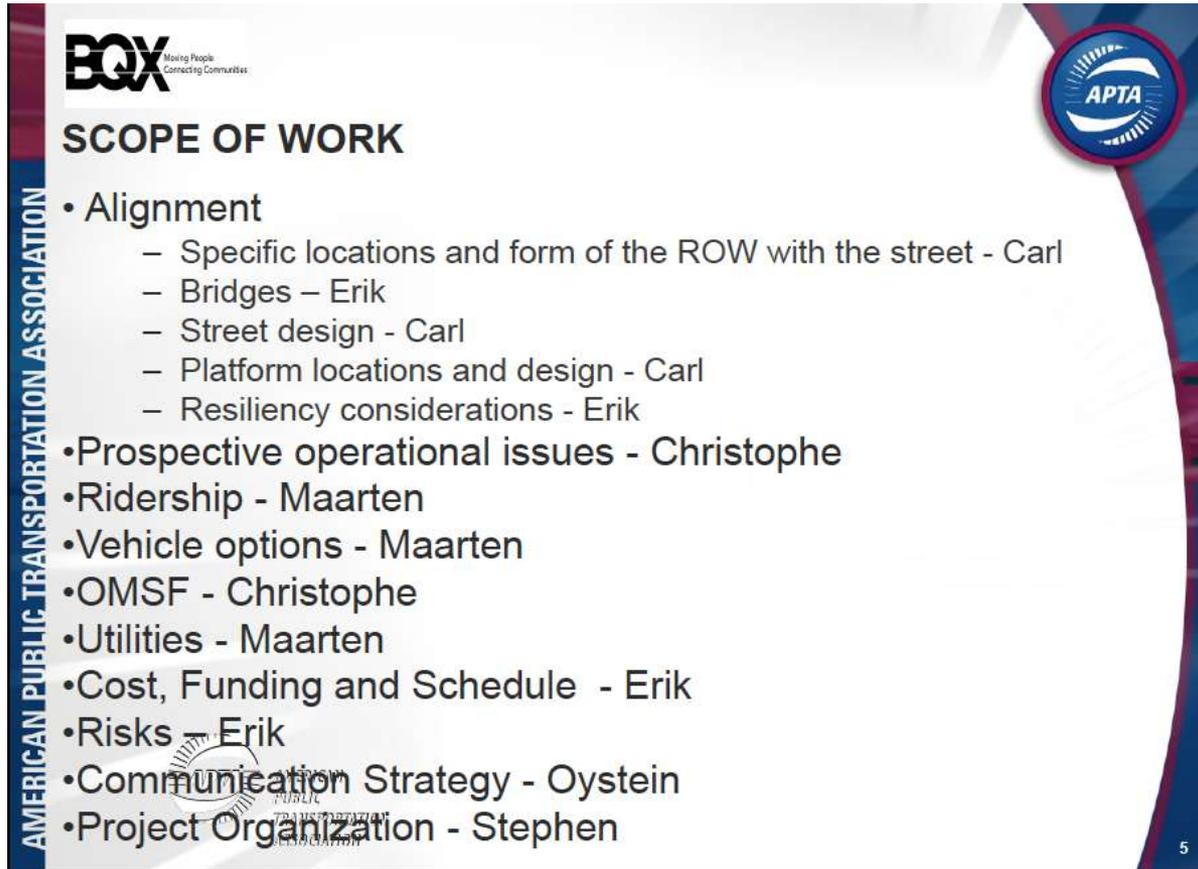
**AMERICAN PUBLIC TRANSPORTATION ASSOCIATION**

- **Carl Silfverhielm**  
Rail Traffic Strategist  
Transport Administration, Stockholm, Sweden
- **Christophe Tenthorey**  
Executive Metro and Streetcar Director  
Regie des Transports Metropolitains, Marseille, France
- **Erik J. Stoothoff**  
Deputy Chief Operating Officer for Infrastructure  
Massachusetts Bay Transportation Authority (MBTA), Boston, MA
- **Maarten Louwerse**  
Program Manager, Head of Rolling Stock Procurement  
GVB, Amsterdam, Netherlands
- **Oystein Otto Grov**  
Planning Manager, Metro Tram  
Public Transport for Oslo and Akershus, Oslo, Norway
- **Stephen Lam**  
Head of Streetcar Maintenance and Infrastructure  
Toronto Transit Commission, Toronto, Canada
- **Charles V. Joseph**  
Director, Rail Programs and Peer Review Facilitator  
American Public Transportation Association (APTA), Washington, DC
- **Narayana Sundaram**  
Director of Engineering and Commuter Rail Operations  
American Public Transportation Association (APTA), Washington, DC

2

# Wide Range of Topics Reviewed

The team brought together a wide range of experience and background and were provided with all the background reports.



**BOQX**  
Moving People  
Connecting Communities

**APTA**

**AMERICAN PUBLIC TRANSPORTATION ASSOCIATION**

## SCOPE OF WORK

- Alignment
  - Specific locations and form of the ROW with the street - Carl
  - Bridges – Erik
  - Street design - Carl
  - Platform locations and design - Carl
  - Resiliency considerations - Erik
- Prospective operational issues - Christophe
- Ridership - Maarten
- Vehicle options - Maarten
- OMSF - Christophe
- Utilities - Maarten
- Cost, Funding and Schedule - Erik
- Risks – Erik
- Communication Strategy - Oystein
- Project Organization - Stephen

5

# Detailed Recommendations Provided

After 1 week of on-site review, preceded by extensive document review the APTA team provided 50+ detailed recommendations and a detailed report came around 1 month after. Used to reassure decision makers that the BQX team was on the right track



**OMSF (Operations Maintenance Storage Facility)**

Recommendations

- The Operations Plan must drive the design and layout of OMSF.
- Determine size and location of the OMSF dependent on storage, inspection and maintenance requirements.
- Some of these functions can be performed at different locations.
- Determine locations, requirements and sophistication for an operations control center (OCC).
- Consider siding tracks for disabled trains and potential overnight train storage.
- Consider employee parking, streetcar storage and employee facilities at the end(s) of line.

AMERICAN PUBLIC TRANSPORTATION ASSOCIATION

30