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*New York, New York*



2018 Rail Conference

# Key Presentation Take-Aways

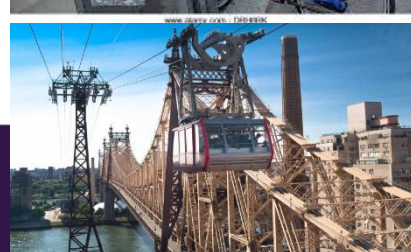
- Policy Context
- Why Explore the BQX?
- How can the BQX happen?
- Context



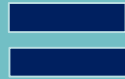
# Policy Context

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

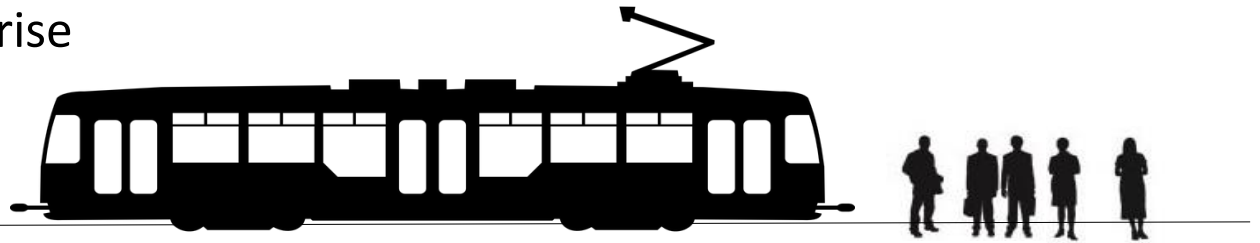


- Transportation connectivity
  - 10 ferry stops
  - 30+ different bus routes
  - 15+ different subway lines
  - 100+ CitiBike stations

# 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

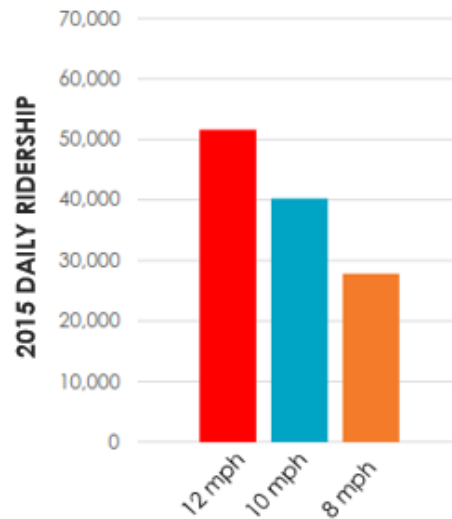


# How can the BQX happen?

## 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/streetcars** 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





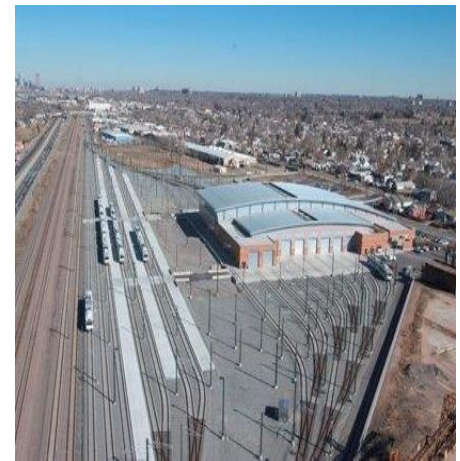
# Maintenance + Storage Facility

## 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

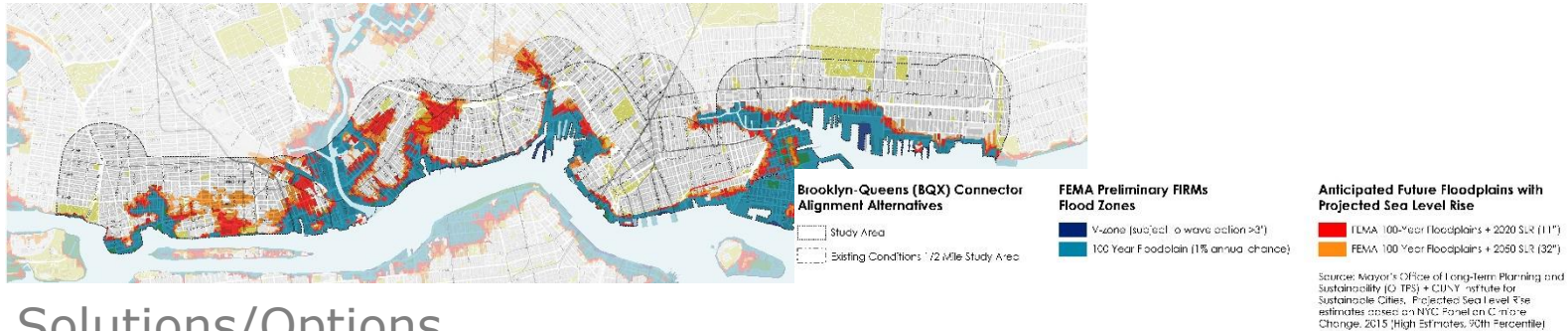
- May require separate parcels of land to meet required area for facility
- Prioritize city-owned land for maintenance facility sites
- Creative site design
  - Utilizing multi-story facilities
  - Creative track geometry



# 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

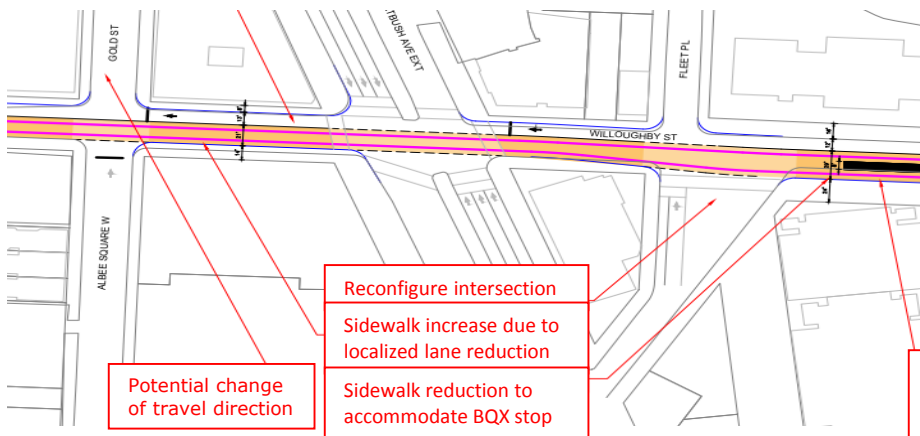
# Narrow Roadways

## 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



Parking on both sides of Street to be removed

# Tight Curves

## Challenges

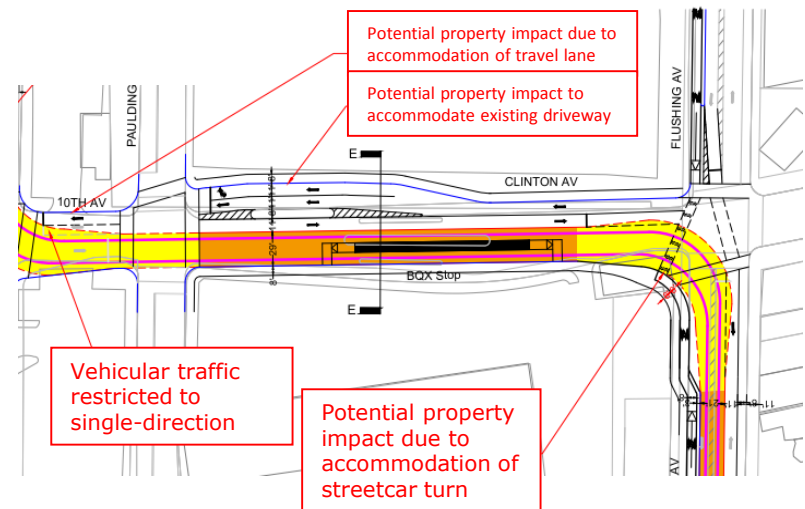
- Existing roadway geometry necessitates tight turning radii (under 50 feet)
- Turns would reduce travel speed and passenger comfort

## 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)

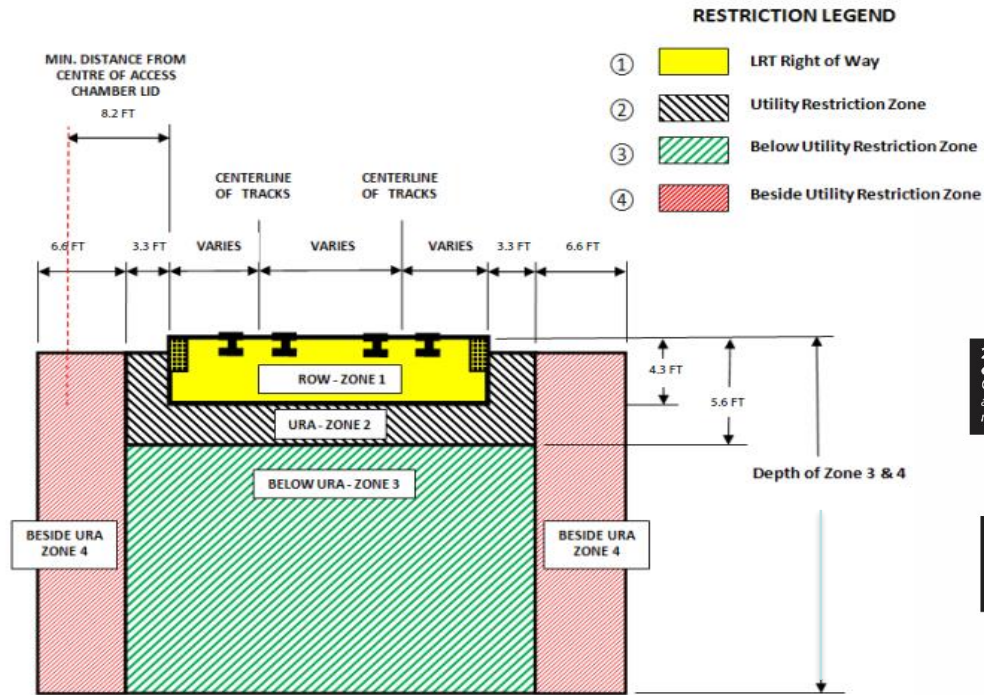




# Berry Street Transit Way



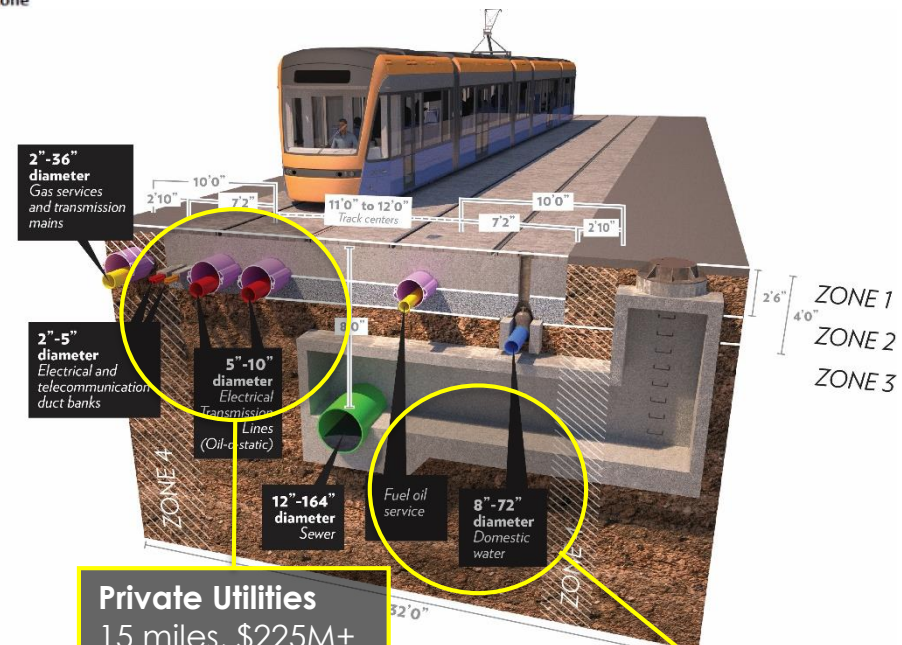
# Utilities Relocation



## 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

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



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

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



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

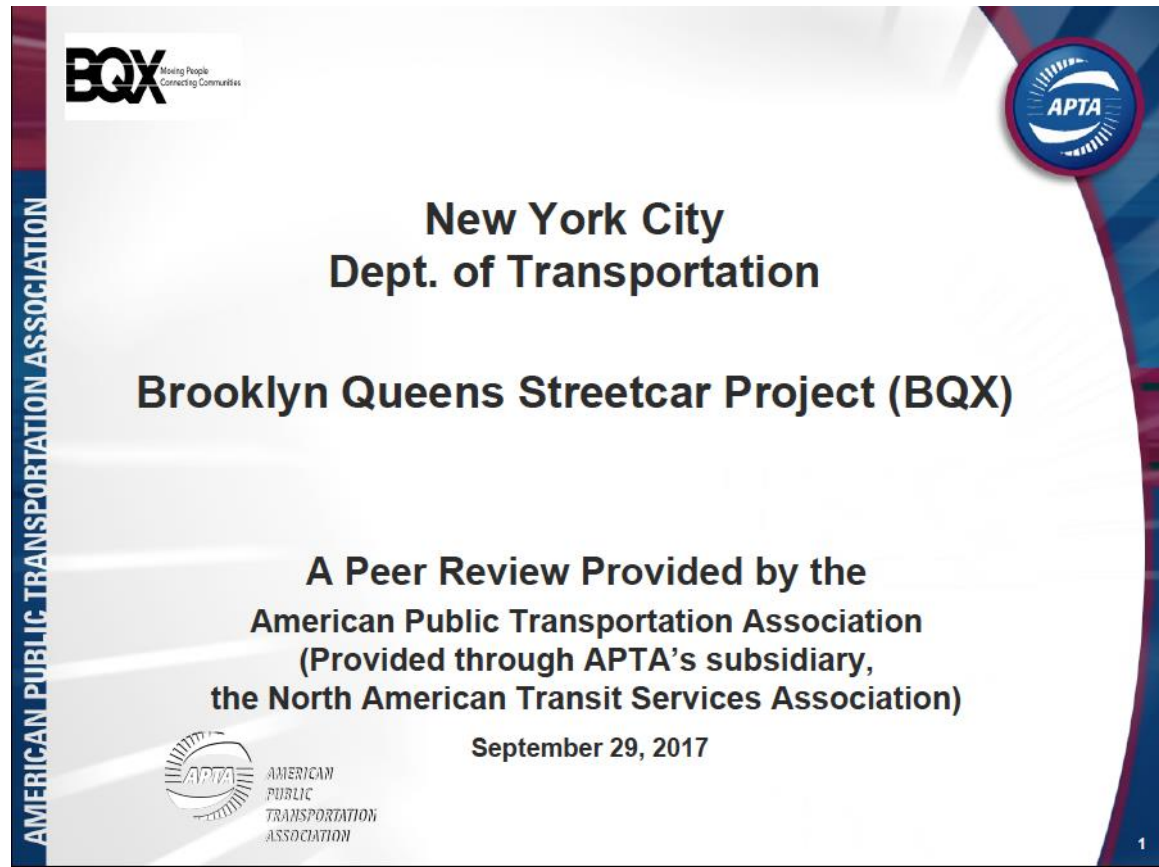


# Joralemon Street



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

Looking to ensure concept and proposed implementation is strong





# 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



**BQX** Meeting People Connecting Communities

**PEER REVIEW TEAM**

**AMERICAN PUBLIC TRANSPORTATION ASSOCIATION**

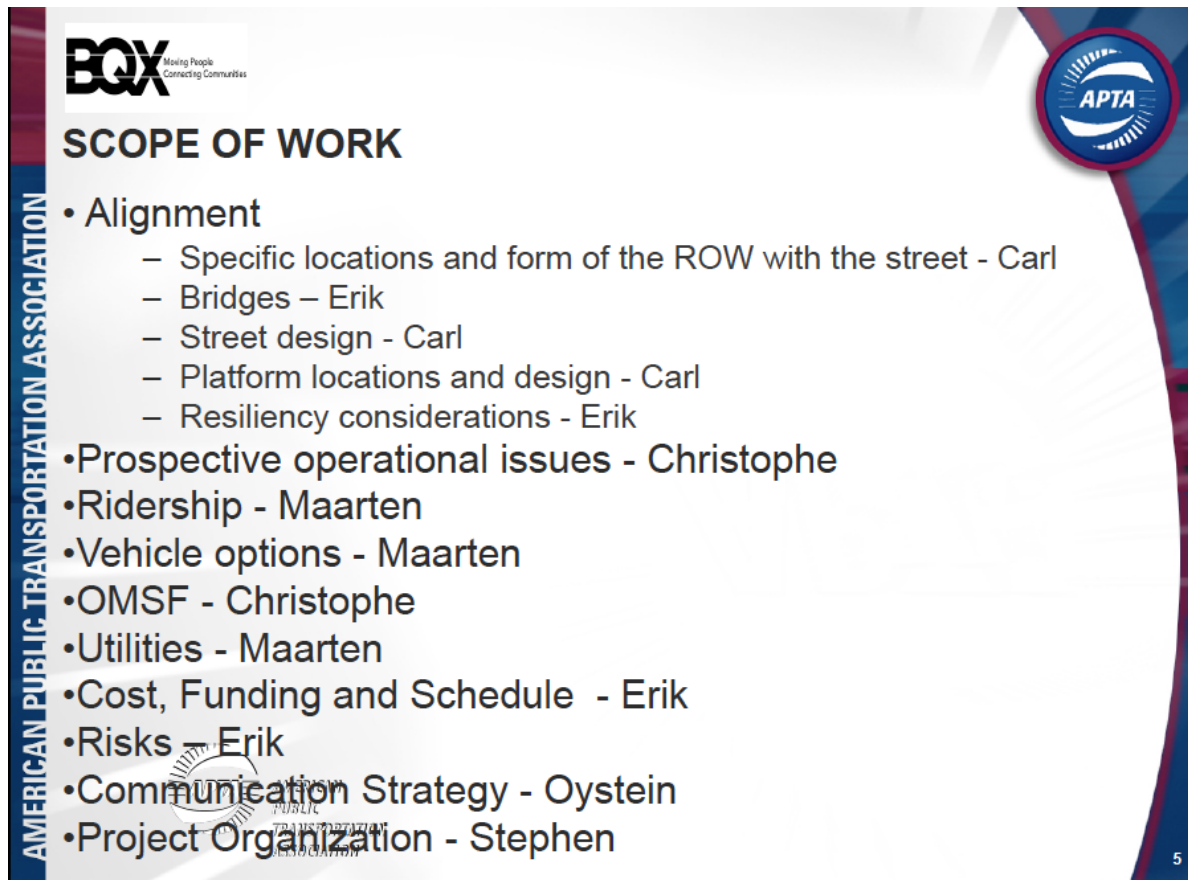
- **Carl Silfverhielm**  
Rail Traffic Strategist  
Transport Administration, Stockholm, Sweden
- **Christophe Tenthorey**  
Executive Metro and Streetcar Director  
Regie des Transports Metropolitains, Marseille, France
- **Erik J. Stoothoff**  
Deputy Chief Operating Officer for Infrastructure  
Massachusetts 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

**APTA**

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.



The slide features a vertical blue bar on the left with the text "AMERICAN PUBLIC TRANSPORTATION ASSOCIATION" in white. In the top left corner is the BQX logo with the tagline "Moving People Connecting Communities". In the top right corner is the APTA logo. The main content is titled "SCOPE OF WORK" and lists various project topics and the team members responsible for them.

**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.



30

