



Moving People
Connecting Communities

Fall 2016



Agenda

- Challenges
- Opportunity
- Idea
- What We've Heard
- What We've Learned
- Timeline

The Challenges

Dense Urban Area & Growing

- More than 400,000 people live and nearly 300,000 people work along corridor

Poor Transit Access

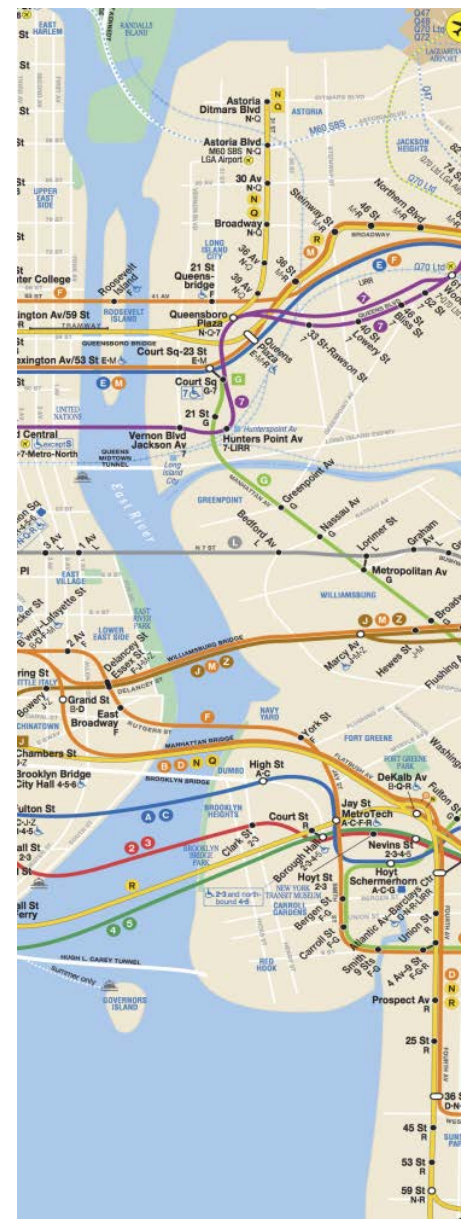
- Too many residents live more than half-mile from a subway

Missing Links

- Poor North-South transit connections between the many opportunities along the waterfront

Shift from Manhattan-Centric Connectivity

- Emerging job hubs, strong academic institutions, and cultural institutions



The Opportunity

Transit equity

- Home to over 400,000 people, including 40,000 NYCHA residents across 13 developments
- 56% of the rental stock is public, rent-stabilized, rent-controlled, or income-restricted

Transit-oriented development & safer street design

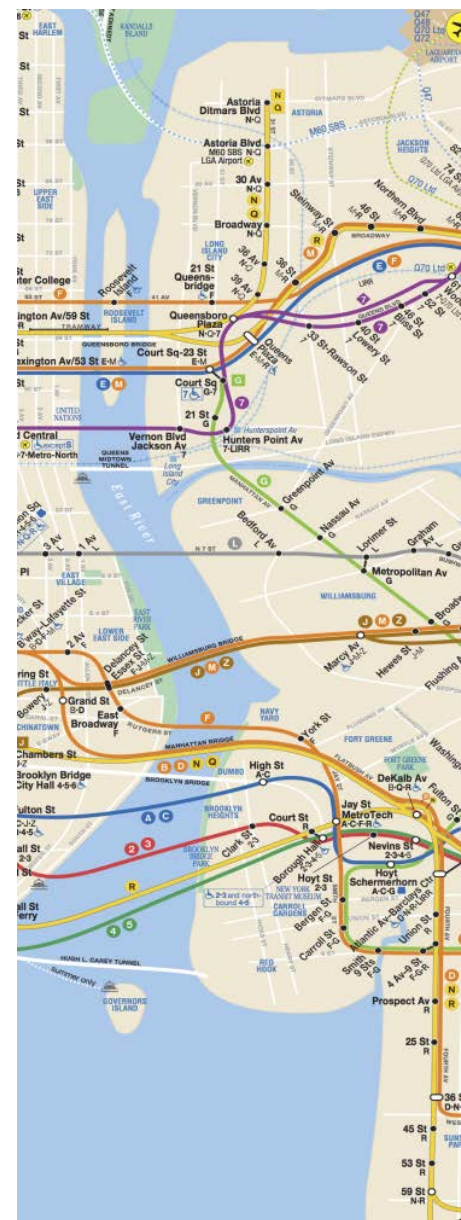
- Encourages walkable neighborhoods and safer streets

Connection to job hubs

- LIC, Cornell Tech, the Navy Yard, Brooklyn Army Terminal, and the Brooklyn working waterfront

Greater transportation connectivity

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



The Idea



A modern, efficient, state-of-the-art transit link to support the growing Brooklyn and Queens waterfront

- Improve connectivity through efficient, reliable transit
- Provide access to workforce opportunities
- Provide sustainable solutions that strengthen the built and natural environment
- Boost to local small businesses

Imagine a Complete System

A fully realized transit system that lessens congestion to improve quality of life

- Frequently spaced stop interval at key destinations
 - 30+ stops approximately ½ mile apart
 - Stops located in the center of the road and blending into the streetscape
- Reliable schedule: 5-10 min between arrivals during peak hours
- Operates in street right-of-way, with as much exclusive lane as possible
- Interacts with vehicular traffic only at intersections
- Modern streetcar vehicles can carry more people more quickly than buses
- Must maximize connectivity to subway, ferries and buses
- Fare pegged to MTA subway fare^{**}

Detailed Analysis

What we're studying

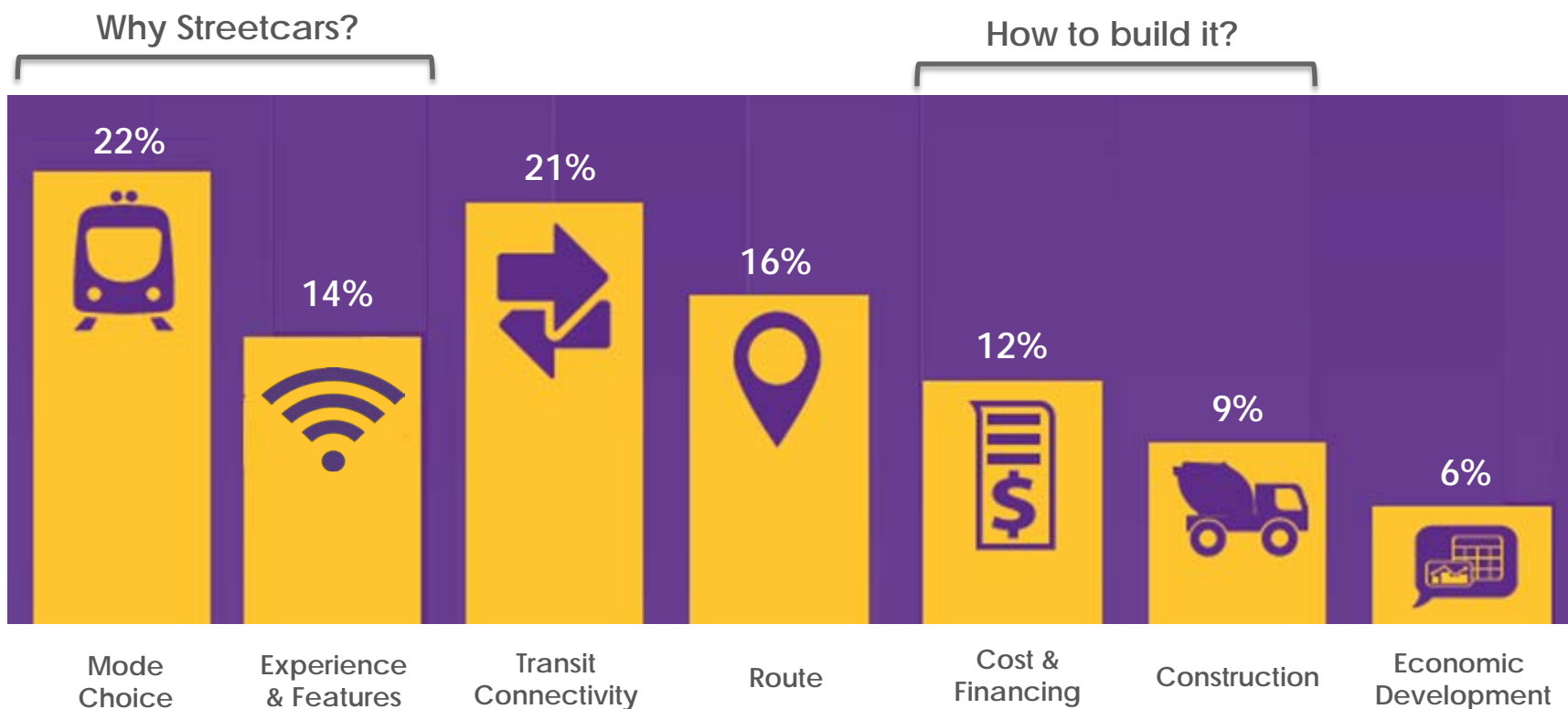
- Potential routes
- Type of vehicle
- Type of power source
- Mode screening
- Resiliency
- Phasing
- Underground infrastructure
- Bridge crossings
- Maintenance & support facilities
- Funding
- Street functions & safety
 - Street cleaning
 - Garbage collection
 - Snow removal (plowing, salt corrosion)
 - Deliveries (commercial, fuel)
 - Emergency response
 - Truck routes
 - Construction



What We've Heard

In the Spring, we held seven visioning sessions up and down the corridor where we shared information and heard from more than 500 New Yorkers.

This is what they care about:



Mode Choice: Safer and More Livable Streets



Toronto, Canada



Paris, France

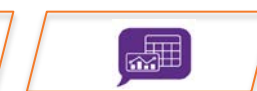
- Streetcars fit into dense urban neighborhoods.
- Streetcars offer an opportunity to implement world-class streetscapes, which focus on pedestrian safety and traffic calming.



Mode Choice: **Faster and More Reliable Transit**



- Streetcars bring fast, frequent transit service to narrow streets
- Streetcars can support growing corridors with adaptable transit capacity
- What can we do to make BQX faster and more reliable?
 - **Separated transit lanes** keep streetcars moving
 - **Modern fare payment** reduces time waiting at stops
 - **Frequent service** shortens the wait
 - **Advanced signals** reduce the time stopped at red lights



Experience & Features: **Comfortable and Accessible Ride**



Dallas, Texas

- Streetcars are quiet and emissions-free
- They have low-floor, level boarding with the street, making them very accessible to seniors and people with disabilities
- Streetcars provide a comfortable experience for riders



Wifi Hotspots

Manchester, UK



Bicycle racks

Minneapolis, MN



Real time Arrival Signs

Dublin, IE



Transit Connectivity

Goals

- Connect BQX to MTA new fare payment technology currently under development
- Connect BQX to key subway stations to improve access to destinations within and beyond the corridor



Popular Transfer Points

Station	2015 Weekday Ridership
Jay St-Metrotech A C R	43,456
Borough Hall 2 3 4 5 R	38,559
Court Sq E G M 7	22,717
Vernon Blvd-Jackson Av 7	14,819



Route Planning Methodology

Informed by the stop recommendations and street preferences shared by the community, along with the following key criteria, we are advancing our route planning process.

- Minimize disruption in traffic flow
- Protect sidewalk loading access
- Estimated travel time
- Estimated ridership
- Connectivity to the existing transit network (Subways, buses, ferries)
- Underground infrastructure



Route Planning: Astoria & Long Island City

Terminus:

- Potentially on-street

Hallets Point (27th Avenue):

- Underserved transit desert

21st Street:

- Connects to E/F/M subways
- Wide road with center running possible
- Community interest in street redesign

Vernon Boulevard:

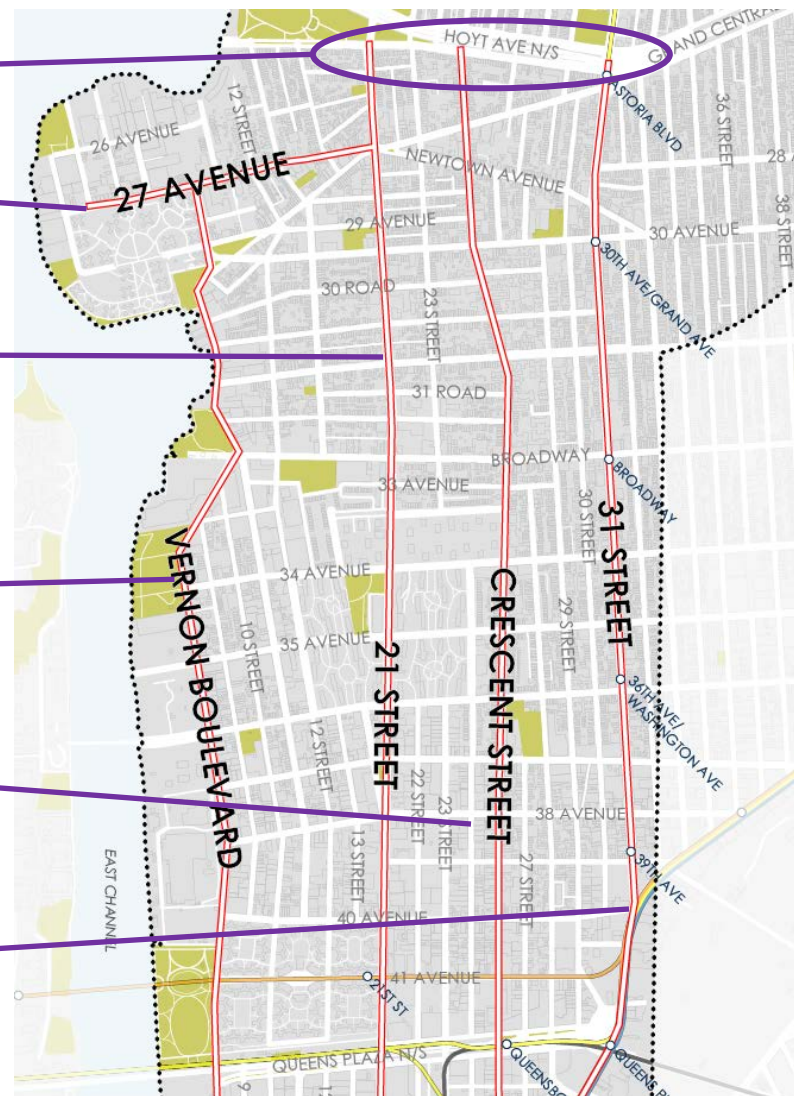
- Narrow, difficult to get exclusive ROW
- Must design around existing Greenway
- Limited catchment (close to river)
- Would serve Hallets Point residents

Crescent Street:

- Close to parallel subway

31st Street:

- Parallel to N/Q trains
- Difficult to operate streetcar beneath elevated tracks



Route Planning: Astoria & Long Island City

21st Street to Jackson:

- Jackson Av street design would be challenging
- Fairly close to 7 train
- Close to G train

11th Street:

- Wide street
- Community interest in redesign
- Straight shot to Pulaski Bridge
- Challenging intersection at Pulaski approach
- Not close to 7 train

Vernon Boulevard:

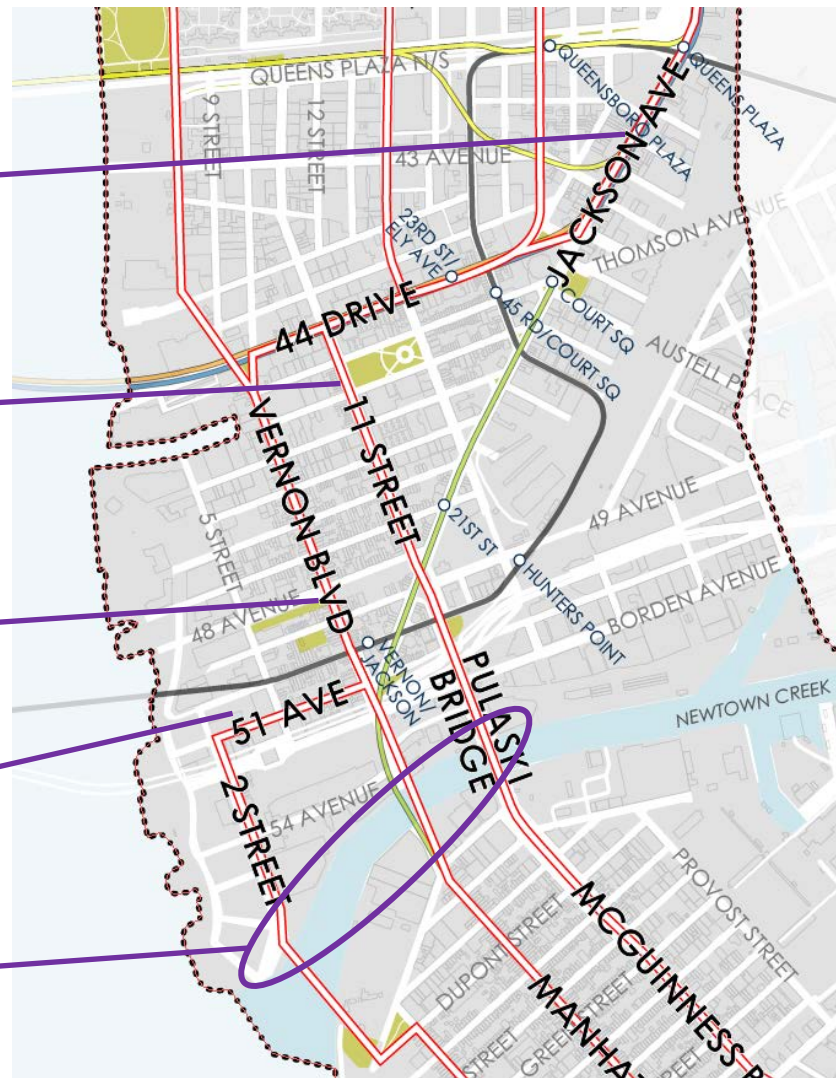
- Historic streetcar route
- Active retail corridor
- Close to 7 train

50th, 51st, Borden to 2nd Street:

- Park access

Three Bridge Options:

- 2nd to Franklin – New bike/pedestrian possibility, access to new growth areas
- Vernon to Manhattan – New bike/pedestrian possibility
- Pulaski – redesign/rehabilitation



Route Planning: Greenpoint & Williamsburg

Freeman and Green Street:

- Bridge is not destiny in Greenpoint

Franklin Street:

- Close to high density residential
- Far from G train

Manhattan Ave:

- Parallel to G train
- Active retail corridor

McGuinness Boulevard:

- Heavy truck and regional traffic
- Limited ridership catchment area
- Far from high density waterfront
- Wide road

Kent Avenue:

- Limited ridership catchment area
- Must design around existing Greenway
- Utility issues

Wythe Avenue:

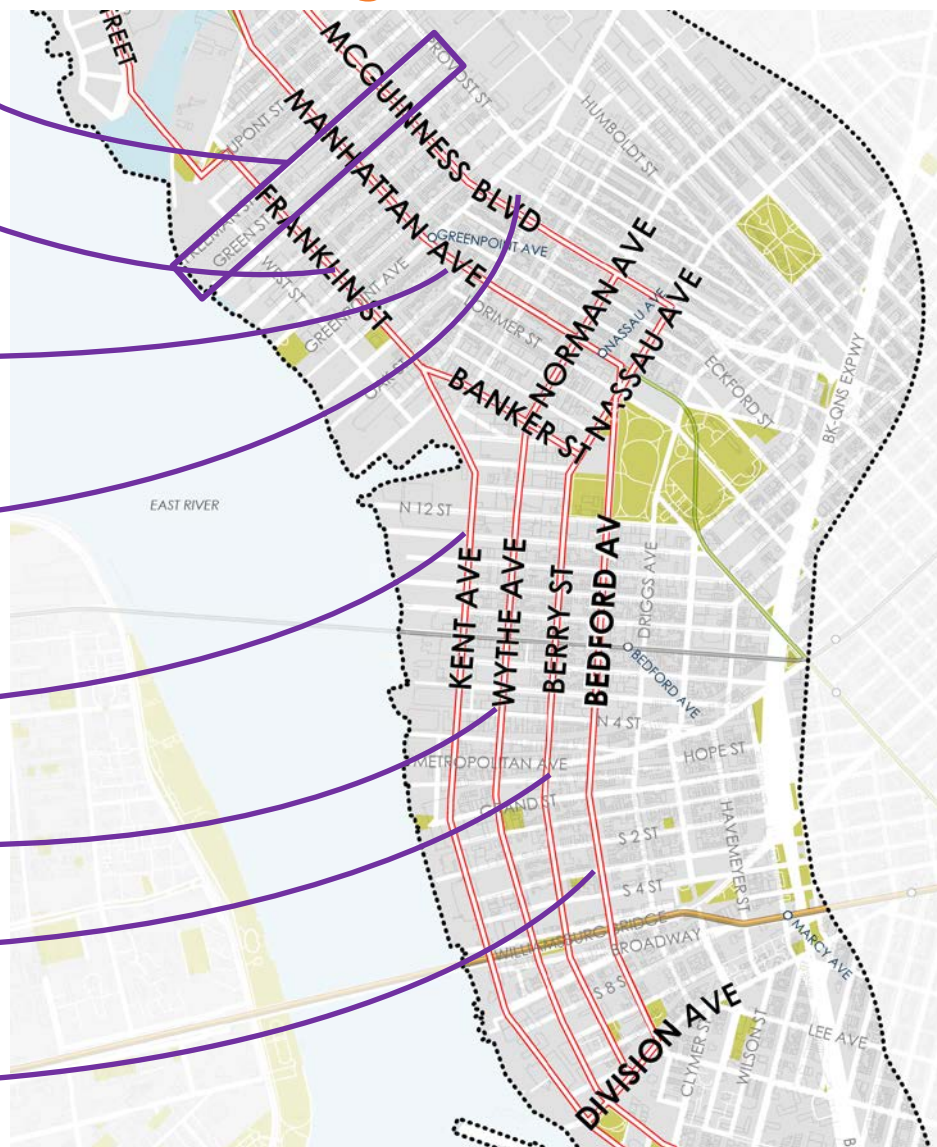
- Medium traffic volumes

Berry Street:

- Relatively low traffic volumes

Bedford Avenue

- Connection to L train
- Far from high density development



Route Planning: Fort Greene & Clinton Hill

Brooklyn Navy Yard:

- Growing job center
- Fastest connection to Downtown Brooklyn

DUMBO:

- Serves Brooklyn Bridge Park
- Good connections to F, A and C trains
- Challenging turns
- Circuitous route between areas south and north of downtown Brooklyn

Flushing Avenue:

- Must design around forthcoming Greenway
- Closer to jobs and growing Navy Yard

Park Avenue:

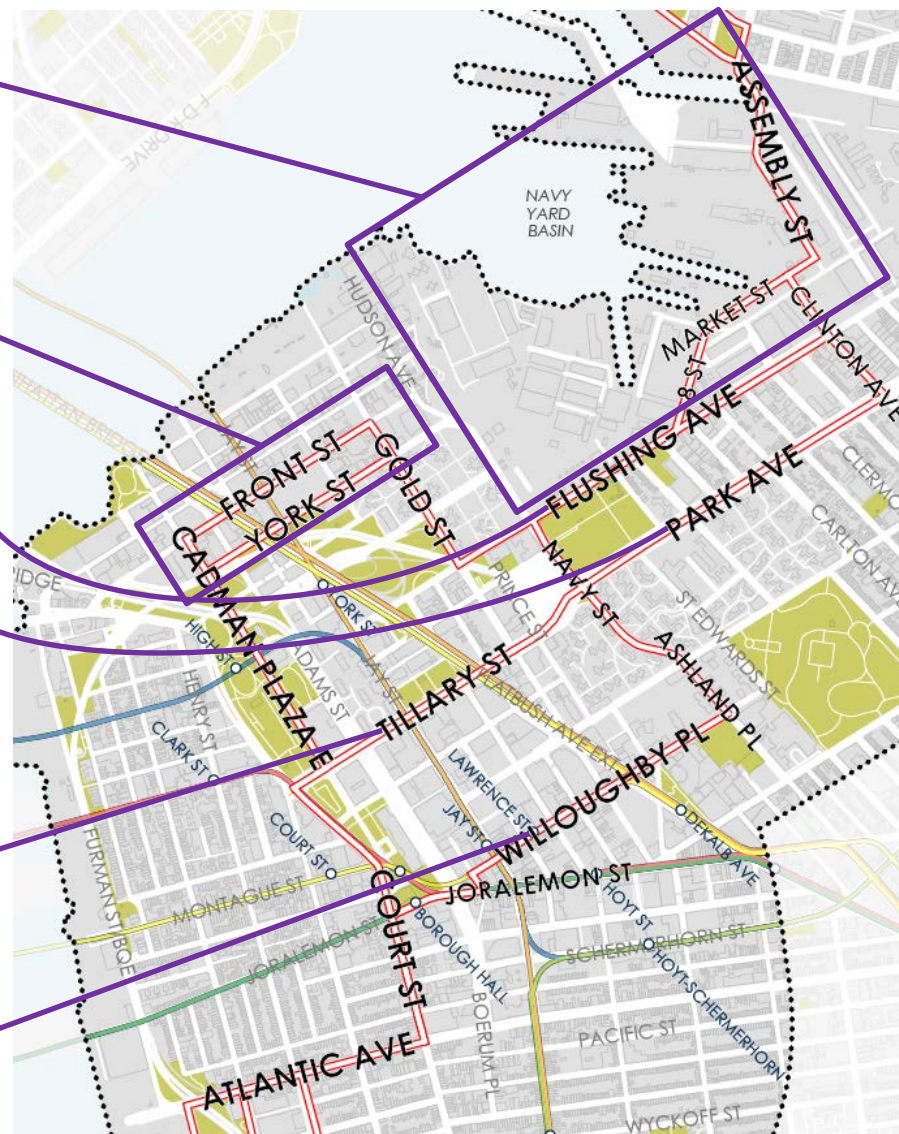
- Closer to existing housing
- Located under the BOE

Tillary Street:

- Challenging intersections that connect to bridges and highways
- Elevating could avoid intersections at substantial added cost
- Less transit connectivity than other options

Willoughby:

- Excellent subway connections to A/C/F/Q/R
- Quicker connection between areas north and south of downtown
- Challenging connection to Downtown BK



Route Planning: Downtown Brooklyn

Adams Street/Boerum Place:

- Fairly close to A/C/F/2/3/4/5 subways
- Major regional traffic corridor
- High volume of bus turns

Joralemon Street:

- Historic district
- Geometry is very challenging

Court Street:

- Excellent connections to 2/3/4/5 subways at Borough Hall
- Does not feed major regional roads and bridges

Atlantic Avenue:

- Relatively wide
- Challenging turns
- Retail corridor
- Connects to Brooklyn Bridge Park
- Feeder to BQE



Route Planning: Cobble Hill

Atlantic Avenue:

- Relatively wide
- Challenging
- Retail corridor
- Connects to Brooklyn Bridge Park

Henry Street to Congress Street:

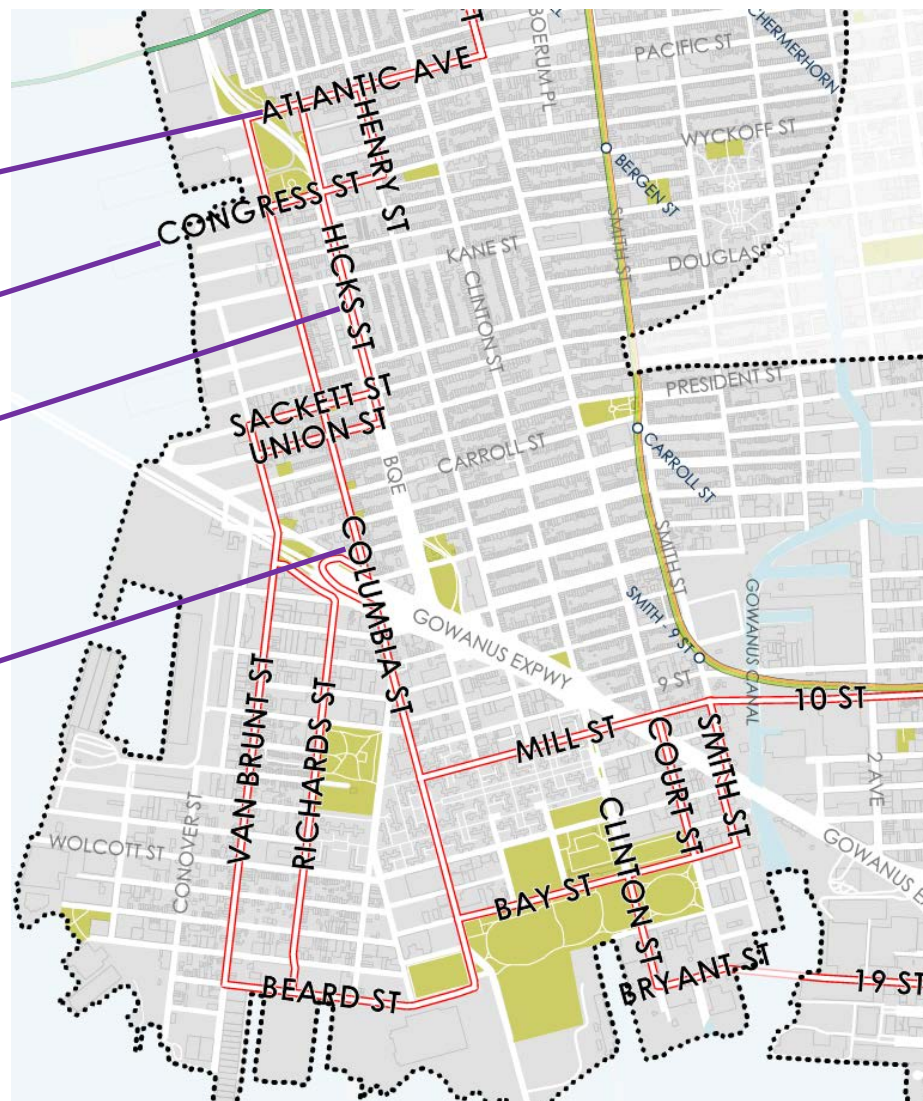
- Historic district
- Challenging geometry

Hicks to Hicks Street:

- Indirect

Columbia Street:

- Relative wide
- Design around existing Greenway
- Retail corridor
- Truck route



Route Planning: Red Hook

Columbia Street:

- Shorter running time
- Smaller geographic catchment, but better serves most densely populated part of Red Hook

Mill Street:

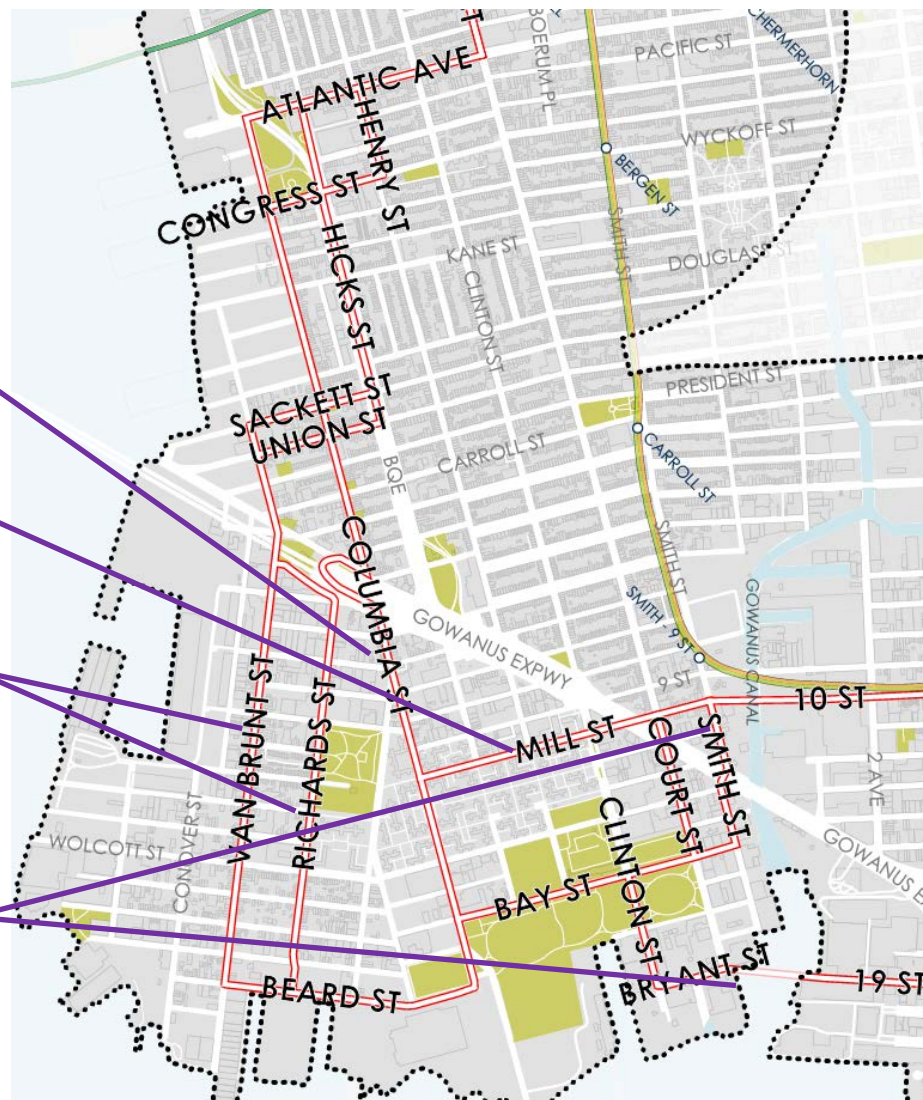
- Connection at Smith/9th

Van Brunt/Richards Street:

- Retail corridor
- Longer running time, but larger geographic catchment

Crossing Gowanus Canal

- 10th street bridge option:
 - Good connection to F and G trains
- 19th street bridge option:
 - Quicker connection to sunset park
 - No F and G connection
 - New bike/pedestrian possibility



Route Planning: **Sunset Park**

4th Avenue:

- Parallel to R train

3rd Avenue:

- Wide street
- Catchment includes residential and industrial businesses
- Challenging street geometry under elevated highway

2nd Avenue:

- Closer to center of industrial jobs
- Concentration of business loading/unloading

Terminal:

- In vicinity of Brooklyn Army Terminal (BAT)



Preliminary Cost & Financing

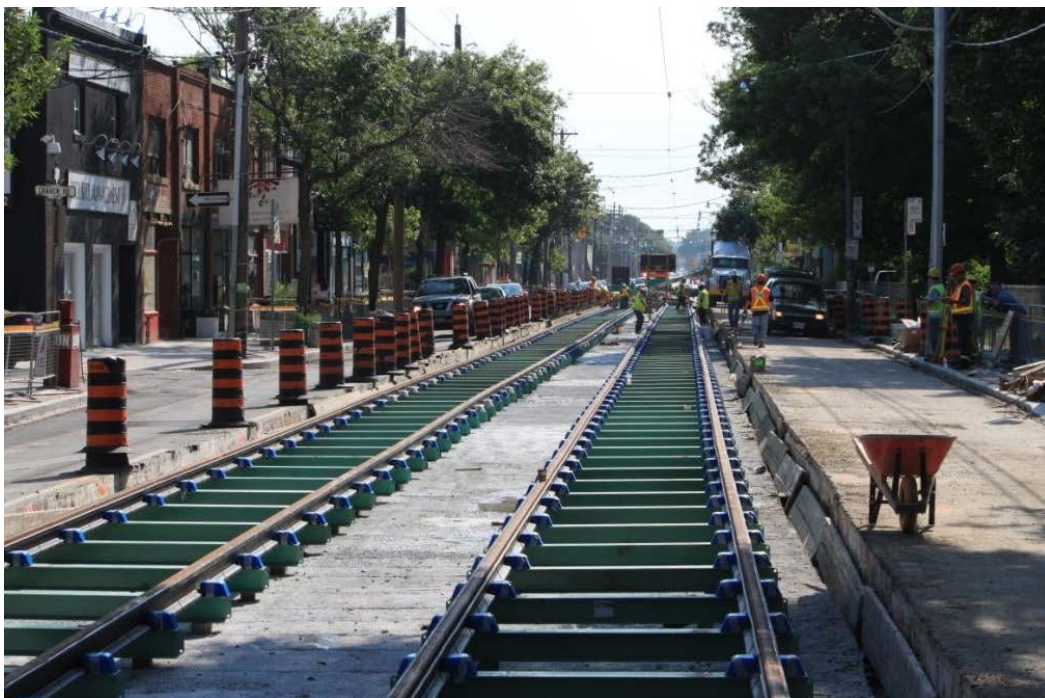
Investment in infrastructure allows for continuity across the corridor in a financially feasible, sustainable system.

- Preliminary capital cost: **\$2.5B**
- Financing Approach
 - Capital funds generated through a new entity able to issue bonds
 - Debt will be repaid by capturing a percentage of increased real estate value along the corridor
- Operations & Maintenance: **~\$30M/yr***

* Preliminary estimate to be refined during further analyses.



Construction: **Underground Infrastructure**



- Extensive coordination underway with City agencies and private utilities to determine scope of subsurface work
- Opportunity to upgrade infrastructure to accommodate a growing city while building a transit improvement



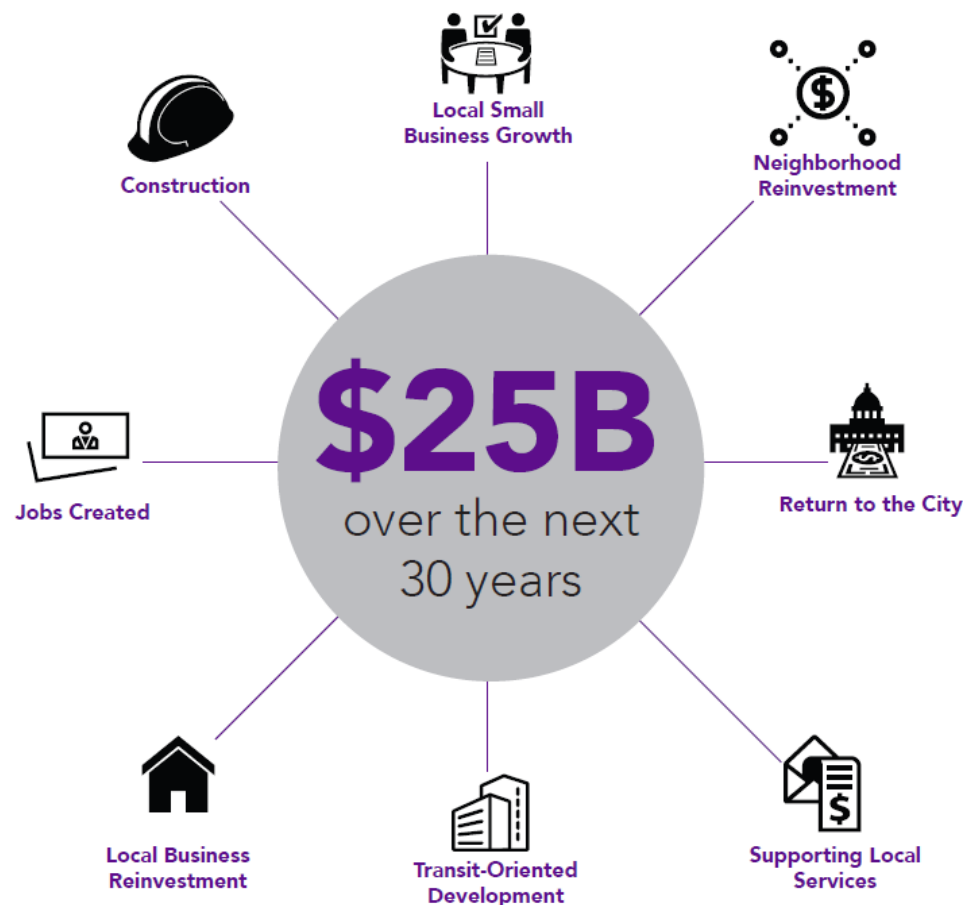
Economic Development

Drives Economic Impact

- Estimated to create \$25 billion in impact over the next 30 years

Advances OneNYC vision

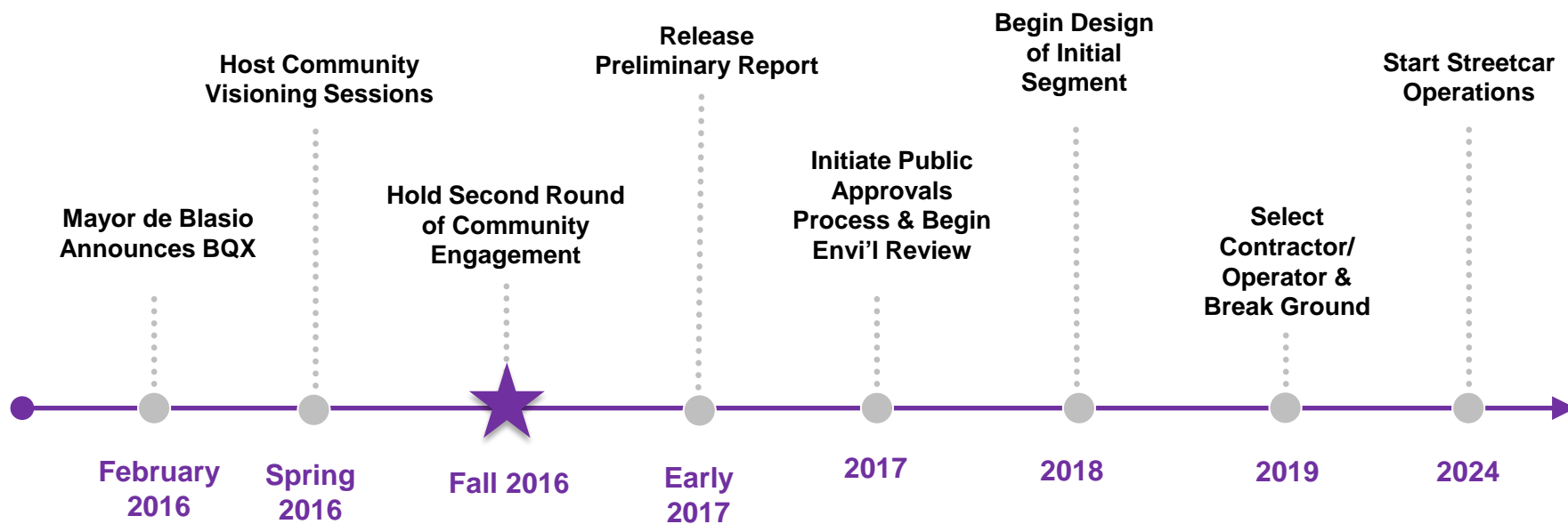
- Increases access to jobs, estimated to create **28,000** construction jobs
- Workforce equipped with the skills needed to participate in the 21st century economy



ECONOMIC IMPACT



Timeline



Questions?

Thank You

