APPENDIX B:
BOARD PRESENTATION MATERIALS RELATING TO THE PORT AUTHORITY BUS TERMINAL MIDTOWN BUS TERMINAL MASTER PLANNING EFFORTS
Midtown Bus Master Plan Update

October 22, 2015
Program Timeline
The Master Planning Process

• **Goals and Objectives:**
  - Improve customer experience
  - Increase capacity and operational efficiency
  - Modernize terminal
  - Reduce neighborhood impacts
  - Develop funding and phasing strategies
  - Strengthen role of buses as most flexible, resilient link in trans-Hudson network

• **Considerations:**
  - Transportation connectivity
  - Bus operation efficiency
  - Urban design impact
The Five Concepts

Concept 1  Concept 3  Concept 5

Concept 2  Concept 4
Concept 1

- Bus staging and storage
- Bus ramps
- Bus gates and facility
- Office 17M sf
- 6th avenue terminal entry

Commercial development  Bus gates and facility  Bus staging & storage  Ramps
Concept 3

- Bus ramps
- Bus gates and facility
- Bus staging and storage

Office: 2.2M sf
Office: 1.7M sf
8th avenue terminal entry
Commercial development
Bus gates and facility
Bus staging & storage
Ramps

THE PORT AUTHORITY OF NY & NJ
Concept 5

Additional trans-Hudson rail capacity - either Gateway (2030) or opening of extension of 7 Line to Secaucus

60 Gates
- Expanded Secaucus Junction

15 Gates
- North Bergen Park & Ride

4 Gates
- Port Imperial Ferry Terminal

Combined commuter/intercity facility at Marshalling Yard site (or on street bus stops near 34th Street 7 Line Station)

Weehawken bus facility
- 18 on-street bus stops and bus priority improvements in Midtown Manhattan
## Concept Summary

<table>
<thead>
<tr>
<th></th>
<th>Concept 1</th>
<th>Concept 2</th>
<th>Concept 3</th>
<th>Concept 4</th>
<th>Concept 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Terminal Location and Commute Quality</td>
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<tr>
<td>Development Opportunities</td>
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<td>✔️ ✔️ ✔️</td>
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<tr>
<td>Meets Commuter Passenger Demand</td>
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<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
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<tr>
<td>Project Duration</td>
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<td>13 years</td>
<td>15 years</td>
<td>11-12 years</td>
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Next Steps

• Peer Review
• Public Outreach
• Planning Authorization
• Retention of Professional Technical Services
• International Design Competition
Midtown Bus Master Plan Update

September 24, 2015
Major Issues at the PABT

• Quality of service – lines, delays, reliability.
• Current peak demand exceeds capacity and spills over onto city streets.
• Queuing buses affect air quality and generate traffic congestion.
• Operating deficit of over $100 million per year.
Major Issues at the PABT

• The structural slabs supporting bus operations will need to be replaced in 15-25 years.
• Addressing structural issues requires replacing the terminal.
• Terminal was not built for taller, longer, heavier modern buses.
• Inadequate bus parking, staging, circulation space.
Forecasted PABT Passenger Growth 2011-2040

- **PM Peak:** + 9% to +18%
- **PM Peak:** + 16% to +29%
- **PM Peak:** + 35% to +51%

- 232,000 passengers daily in 2011
- Up to 270,000 passengers daily by 2020
- Up to 294,000 passengers daily by 2030
- Up to 337,000 passengers daily by 2040
Early Actions in Place

PABT $90 million Quality of Commute Improvement Program

• Improved Trip Reliability/Reduced Terminal Crowding
• Consolidated NJT operations on third floor and reassigned bus gates
• Improved Communications
• Improved Terminal Conditions
Concept 1

- Only concept that accommodates all 2040 commuter and intercity demand
- Locates terminal close to subways and midtown central business district
- Requires an interim terminal facility
**Concept 2**

- Allows for additional office tower on bus terminal site
- Requires an interim terminal facility
- Requires additional facility to accommodate intercity buses
**Concept 3**

- Does not require an interim facility
- Maximizes revenue potential from development of PABT site
- Requires additional facility to accommodate intercity buses
- Longer walk for most bus passengers
Pedestrian Challenges with moving terminal west

• 87% of bus terminal passengers are expected to cross 9th Avenue as they arrive at or leave the terminal.

• In 2040, the forecast is for approximately 194,000 pedestrian trips across 9th Avenue every business day.

• Bus gates are between 1,200 and 1,600 feet from terminal entrance on 8th Avenue at 41st Street – a 5-7 minute walk.
Concept 3 and 5: Pedestrian Walkway

Mezzanine Level Floor Plan

- Commercial Development
- Retail
- Passenger Circulation
Concept 4

- Requires an interim terminal facility
- Requires additional facility to accommodate intercity buses
- Bus staging and storage facility does not meet Port Authority operational and engineering standards due to site constraints
Concept 5

- Least expensive set of bus facilities in NYC
- Maximizes development revenue
- Accommodates only 50% of 2040 commuter demand
- Requires additional facility to accommodate intercity buses
- Longer walk for most bus passengers
Ideas for further study from outside consultants

1. Consider shortening project schedule by
   a. Avoiding development of an interim bus terminal.
   b. Consolidating government approvals with site acquisition.
   c. Breaking construction work into multiple bid packages.

2. Focus on reducing total project cost by:
   a. Shortening project duration.
   b. Using pre-cast elements.
   c. Reducing soft costs.
Ideas for further study from outside consultants

3. Possible changes to program and facility design:
   a. Replace triple helix ramp complex with ramps cantilevered on the outside of the terminal.
   b. Increase bus-only lanes on the Lincoln Tunnel corridor and automate vehicle technology.
   c. Centralize control of PABT operations in a single entity.
   d. Scale back on staging/storage facility and stage buses within terminal building and at other facilities in NYC or NJ.
   e. Reconsider whether Port Authority should provide bus parking facilities, which are typically an operator responsibility.
Midtown Bus Master Planning Update
Public Session
March 19, 2015
Midtown Bus Master Planning Update

• Planning team has been at work for a year and a half.
• Addresses trans-Hudson buses today and into 2040.
• Includes commuter buses from NJ, NY, and PA and intercity buses (which are non-commuter buses traveling longer distances).
• Consultant team:
  • Kohn Pedersen Fox Associates (Architects)
  • Parsons Brinckerhoff (Engineering)
  • Skanska (Construction Staging)
  • Thornton Tomasetti (Structural Engineering)
  • VJ Associates (Estimating)
Goals for Bus Master Planning

- Improve customer experience
- Increase capacity and operational efficiency
- Modernize terminal
- Reduce neighborhood impacts
- Develop funding and phasing strategies
- Strengthen role of buses as most flexible, resilient link in trans-Hudson network
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Early Actions in Place

PABT $90 million Quality of Commute Improvement Program

- Improved Trip Reliability/Reduced Terminal Crowding
- Improved Communications
- Improved Terminal Conditions
Potential Additional Early Actions

• Build bus storage/staging options in NY and NJ
• Develop satellite terminal for intercity bus operations
• Implement technology to improve fleet management
• Explore strategies to manage near term growth at the existing terminal:
  • Route consolidation
  • Hub & spoke operations
  • Hudson River ferries
  • Service to other transit hubs in NY and NJ (George Washington Bridge Bus Station, Secaucus Junction, ferry terminals)
  • Gate utilization
Why not rehabilitate the existing PABT?

• Impractical to keep the PABT operational during a phased rehabilitation of the bus level floor slabs.

• Meeting code and accessibility requirements would reduce capacity below current levels.

• Expansion required to address lost capacity, current deficiencies and growing demand.

• Major capital investment needed over the next 25 years to keep the PABT in operation without addressing structural slabs and without expanding capacity.
Midtown Bus Master Planning Update

- Building blocks for the plan:
  - Population and employment projections
  - Travel demand forecasts in coordination with NJ Transit
  - Interviews with bus operators, bus passenger surveys
  - Requirements for bus gates, staging, parking, passenger circulation
  - Survey of West Midtown properties
- 20 initial alternatives screened down to 5 working concepts.
- Developed construction staging and cost estimates.
- Work is in progress. Additional alternatives are being analyzed and must be reviewed by stakeholders before the Port Authority and our regional partners settle on a course of action.
Growing Demand

Trans-Hudson Travel, Manhattan below 60th St.

Source: NYMTC Hub Bound Travel Report
Major Manhattan Transit Terminals

<table>
<thead>
<tr>
<th>Terminal</th>
<th>Intercity</th>
<th>Commuter Bus</th>
<th>Commuter Rail (MTA)</th>
<th>Commuter Rail (NJ Transit)</th>
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<tr>
<td>Port Authority Bus Terminal</td>
<td>150,000</td>
<td>250,000</td>
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<tr>
<td>Grand Central Terminal</td>
<td>0</td>
<td></td>
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</tbody>
</table>

Passengers per Weekday
Importance of the Trans-Hudson Bus System

• Over 115,000 west of Hudson residents commute via bus to jobs in Manhattan.

• They collectively earn $9.5 billion a year, supporting economic activity equivalent to 3% of NJ’s economy.

• More than 8,000 NYC residents commute by bus to jobs west of the Hudson.

• Access to expanding West of Hudson workforce is critical to NYC’s competitiveness as an office location.

• The PABT is a resilient regional lifeline when the rail system is disrupted.
Forecasted PABT Passenger Growth 2011-2040

PM Peak: + 9% to +18%

232,000 passengers daily in 2011
Up to 270,000 passengers daily by 2020
Up to 294,000 passengers daily by 2030
Up to 337,000 passengers daily by 2040

PM Peak: + 16% to +29%

PM Peak: + 35% to +51%
Magnitude of New Facilities

• 2040 projections indicate up to 42,000 passengers in the PM peak hour, up from 28,000 today. The facility must handle the seating capacity of the Mets’ Citi Field ballpark each peak hour.

• 1,000 27-ton buses per hour in the PM peak, up from 770 today. Placed end to end, these buses would stretch over 8½ miles.

• Accommodating these buses requires one of the largest, most complex transit terminals in the country – 5 levels of terminal, ramps, staging, and parking covering 3½ city blocks and bridging streets and active tunnel portals.
Possible Project Timeline and Staging Approach

- Planning, Design, Environmental Review, Permitting, Financing (6 years)
- Build bus annex west of the PABT with temporary terminal functionality (4 years)
- Relocate bus operations on temporary basis to bus annex, the GWB Bus Station, and other locations
- Demolish PABT and build replacement (4 years)
- Open new terminal and convert bus annex to staging/storage use (1 year)

15 years to design, approve, finance, and build
Concept Review: Concept 1

- Largest terminal – sufficient to serve all projected bus ridership to 2040
- Nearest to subways and employment locations
- Requires interim bus facility
- Least funding from development rights

Estimated Project Cost: $10.5 +/- billion
Estimated Project Duration: 15 +/- years
Concept Review: Concept 2

- Terminal set back from 8th Avenue
- Capacity to serve projected commuter bus demand
- Intercity buses relocated off-site
- Requires interim bus facility
- Development along 8th Avenue generates more funding

Estimated Project Cost: $10.0 +/- billion
Estimated Project Duration: 15 +/- years
Concept Review: Concept 3

- Terminal moved to west of 9th Avenue – longer connection to subways
- Capacity to serve projected commuter bus demand
- Intercity buses relocated off-site
- Does not require interim bus facility
- More funding from development

Estimated Project Cost: $9.0 +/- billion
Estimated Project Duration: 13 +/- years
Concept Review: Concept 4

- Terminal set back from 8th Avenue
- Bus staging and storage moved east of 10th Av. and south of 39th Street
- Capacity to serve projected commuter bus demand
- Intercity buses relocated off-site
- Requires interim bus facility
- More funding from development

Estimated Project Cost: $10.0 +/- billion
Estimated Project Duration: 15 +/- years
**Concept Review: Concept 5**

- Smaller terminal between 9th and 11th Avenues
- Bus staging housed within terminal
- Accommodates 73% of current commuter demand (53-59% in 2040)
- Intercity and some commuter buses relocated off-site
- Requires additional facilities at other locations to meet projected demand
- Does not require interim bus facility

Estimated Project Cost: $7.5 +/- billion
Estimated Project Duration: 11-12 +/- years
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<td>Estimated Total Project Cost</td>
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<td>$9.0 billion</td>
<td>$10.0 billion</td>
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<tr>
<td>Meets Commuter Passenger Demand</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td>Project Duration (Including 6 year pre-construction period)</td>
<td>15 years</td>
<td>15 years</td>
<td>13 years</td>
<td>15 years</td>
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## Total Project Costs – Order of Magnitude

<table>
<thead>
<tr>
<th>Description</th>
<th>Cost</th>
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<tbody>
<tr>
<td>Bus Facilities (3.7 M sf @ $1,230/sf pre-escalation)</td>
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<tr>
<td>New Terminal (2.1 M sf)</td>
<td>$2.8 B</td>
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<tr>
<td>Parking and Staging Facility and Ramps (1.6 M sf)</td>
<td>$1.7 B</td>
</tr>
<tr>
<td>Escalation</td>
<td>$1.4 B</td>
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<tr>
<td><strong>Hard Construction Cost</strong></td>
<td>$5.9 B</td>
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<tr>
<td>Planning, Engineering, Legal, Professional</td>
<td>$1.3 B</td>
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<tr>
<td>Financing and Insurance</td>
<td>$1.4 B</td>
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<tr>
<td><strong>Soft Costs</strong></td>
<td>$2.7 B</td>
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<tr>
<td><strong>Program Contingency</strong></td>
<td>$1.9 B</td>
</tr>
<tr>
<td><strong>Total Project Cost</strong></td>
<td>$10.5 B</td>
</tr>
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</table>

*Construction costs estimated by KPF/PB Joint Venture, Skanska and VJ Associates*
Cost Estimation

Construction cost estimates account for:

• Unusually heavy gauge of construction
• Phasing plans that keep bus terminal operational at all stages of construction
• Restricted work schedules to maintain Lincoln Tunnel access and egress
• Site limitations
• Escalation to the mid-year of construction
• $500 million for satellite intercity facility (Concepts 2-5 only)

Soft costs, program contingency, and other factors consistent with Port Authority experience and industry standards.
# Public Transportation Projects of Similar Magnitude

<table>
<thead>
<tr>
<th>Project</th>
<th>Cost Estimate (Current)</th>
<th>Federal Share</th>
<th>Construction Timeline</th>
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<tr>
<td><strong>Current Regional Projects</strong></td>
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<tr>
<td>WTC Transportation Hub</td>
<td>~$4 billion</td>
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<td>2006 - 2015</td>
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<td>East Side (Rail) Access</td>
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<td>$2.6 billion</td>
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<tr>
<td>Second Avenue Subway (Phase 1)</td>
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<td><strong>Proposed Regional Projects</strong></td>
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<td>Second Avenue Subway (Phase 2)</td>
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<td>Amtrak’s Gateway Project</td>
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<td><strong>Current National Projects</strong></td>
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<tr>
<td>Washington Metro Dulles Corridor</td>
<td>$5.7 billion</td>
<td>$900 million (Phase 1)</td>
<td>2010 - 2018</td>
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<td>$1.9 billion (TIFIA, Phase 2)</td>
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<td>LA Purple Line Subway Extension (Phase 1&amp;2)</td>
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<tr>
<td>Honolulu Transit Corridor</td>
<td>$5.1 billion</td>
<td>$1.6 billion</td>
<td>2012 - 2019</td>
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</table>

Sources: FTA, USDOT, and other government websites
Funding

• PABT replacement program requires a funding strategy that addresses capital costs and operating loses.

• Funding of new bus facilities requires participation from the Port Authority; local, regional and federal government; and the private sector.

• Decisions about bus facility investments must be part of a comprehensive, multi-modal interstate network strategy.
Potential Funding Sources

• Port Authority Capital Plan
  • Monetizing Port Authority Development Rights
• Federal Grants and Loans
• Participation by Other Agencies and Localities
• Private Investment
Next Steps

Constructing a new bus terminal requires broad regional support and robust federal, state, and local participation.

In the next phase, the Port Authority will:

- Discuss alternatives with the community and commuters.
- Engage key stakeholders.
- Study additional alternatives in context of the full range of needs on the multimodal trans-Hudson network.
- Develop a funding strategy for capital and operating costs.