Purpose of Today’s Workshop

Engaged discussion of potential alternatives

- A forum for open, general discussion of alternatives that may be considered in the Cross Harbor Freight Program
- Review methods and approaches for defining and evaluating Alternatives, and how these fit into the overall project process
- Address questions, concerns, or critical issues

Two main goals:

- To ensure the process is understandable and transparent
- To ensure we have your input
**EIS Schedule**

**Tier I**

- Purpose & Need
- Notice of Intent
- Methodology Reports
- Public Involvement
- Market Analysis
- Alternatives
- PDEIS and DEIS
- DEIS Public Hearings
- FEIS and ROD

<table>
<thead>
<tr>
<th>Phase 1</th>
<th>Phase 2</th>
<th>Phase 3</th>
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<tbody>
<tr>
<td>0 (Months)</td>
<td>10 (Months)</td>
<td>16 (Months)</td>
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<td>July 2009</td>
<td>April 2010</td>
<td>October 2010</td>
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<td>26 (Months)</td>
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<td>August 2011</td>
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**Key Questions**

- How will the information from the previous Major Investment Study (MIS) and DEIS be utilized?
- How should we proceed to ensure the project leads to the best possible transportation investment choices?
- What are our freight markets?
- What kinds of alternatives are on the table?
- How will alternatives be evaluated?
**Agenda**

- Introduction
- Markets and Alternatives
- Alternatives Evaluation
- Break (10 Minutes)
- Potential Alternatives
- Issues #1 and #2
- Summary and Next Steps

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**Working Assumptions**

**Market Opportunities**

Four main “families” of market demand for Cross Harbor freight:

1. Grow direct rail service to/from customers East of Hudson, focusing on proven rail commodities
2. For rail traffic terminating West of Hudson and then trucked East of Hudson, move the rail trip end to East of Hudson
3. Shift the ‘middle’ segment of long-haul East of Hudson truck trips to rail, and terminate the rail trip East of Hudson
4. For shorter-haul “in region” truck trips, provide an alternative to existing bridge and tunnel crossings
Working Assumptions
54-County Data Analysis Region

Counties in NJ, NY, PA, and CT

Legend
- Freight Rail Lines
- Rail Yards and Intermodal
- Interstate Highways
- U.S. Highways
- NJ/NY Counties
- NY/NJ TCOs
- 54-County Region

Opportunity #1, Grow Existing Rail Markets

Rail Tonnage, NY and NJ Study Region Counties, 2007

<table>
<thead>
<tr>
<th>Direction</th>
<th>Carload Units</th>
<th>Intermodal Units</th>
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<tbody>
<tr>
<td>Inbound</td>
<td>821,819</td>
<td>518,720</td>
</tr>
<tr>
<td>Outbound</td>
<td>602,852</td>
<td>523,668</td>
</tr>
<tr>
<td>Intra-regional</td>
<td>7,304</td>
<td>80</td>
</tr>
<tr>
<td>Through</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>Total</td>
<td>1,431,975</td>
<td>1,042,468</td>
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</table>

Source: Surface Transportation Board Carload Waybill Sample, 2007

Source: Surface Transportation Board Carload Waybill Sample, 2007
Working Assumptions
Opportunity #1, Grow Existing Rail Markets

Rail Tonnage for Selected East of Hudson Counties, 2007
(Bronx, Kings, Nassau, Queens, Suffolk, and Westchester)

<table>
<thead>
<tr>
<th>Direction</th>
<th>Carload Units</th>
<th>Intermodal Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inbound</td>
<td>24,208</td>
<td>0</td>
</tr>
<tr>
<td>Outbound</td>
<td>19,912</td>
<td>0</td>
</tr>
<tr>
<td>Intra-regional</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Through</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>44,120</td>
<td>0</td>
</tr>
</tbody>
</table>

Source: Surface Transportation Board Carload Waybill Sample, 2007

Why none East of Hudson? Three reasons are cited:
1) Lack of suitable rail terminals and connections
2) Limited demand for full box shipments by East of Hudson receivers
3) Lack of warehouse/distribution space to make/break box loads
Working Assumptions
Opportunity #2, Move Rail Trip Ends

In 2001-2002, between 82% and 90% of trucks moving to and from West of Hudson intermodal rail yards did not cross the GWB.

Source: Surface Transportation Board electronic filings

Working Assumptions
Opportunity #3, Divert Long-Haul Trucks

Long-haul trips are 500 miles or more, on average. This diversion opportunity represents around 10% of all truck tonnage.
**Working Assumptions**

**Opportunity #3, Divert Long-Haul Trucks**

- Long haul trucks to EOH are mostly originating in Ohio, North Carolina, Indiana, Florida, Illinois, and Texas.
- Long haul trucks from EOH are terminating in a variety of states.

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**Working Assumptions**

**Opportunity #3, Divert Long-Haul Trucks**

- Long haul trucks to EOH carry mostly chemicals and food.
- Long haul trucks from EOH mostly carry secondary traffic, food, fuel, and other products.
Working Assumptions
Opportunity #4, Address Shorter-Haul Trucks

- Short-haul trips are defined as trips within the 54-county study area.
- Mid-haul trips are other trips of less than 500 miles, on average.
- This diversion opportunity represents around 17% of all truck tonnage.

<table>
<thead>
<tr>
<th>Transearch Data</th>
<th>2007</th>
<th>2035</th>
<th>Growth</th>
<th>Rate</th>
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</thead>
<tbody>
<tr>
<td>All Truck Tonnage</td>
<td>1,097,721,109</td>
<td>1,535,076,042</td>
<td>40%</td>
<td>1.2%</td>
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<tr>
<td>Mid-Haul Inbound from WOH to Study Area EOH</td>
<td>63,401,213</td>
<td>84,107,644</td>
<td>33%</td>
<td>1.0%</td>
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<td>Mid-Haul Outbound to WOH from Study Area EOH</td>
<td>21,264,196</td>
<td>25,146,309</td>
<td>18%</td>
<td>0.6%</td>
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<td>Short-Haul Inbound from Study Area WOH to Study Area EOH</td>
<td>80,557,857</td>
<td>108,026,772</td>
<td>34%</td>
<td>1.1%</td>
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<tr>
<td>Short-Haul Outbound to Study Area WOH from Study Area EOH</td>
<td>30,664,996</td>
<td>38,179,755</td>
<td>24%</td>
<td>0.8%</td>
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</tbody>
</table>

Working Assumptions
Families of Potential Alternatives

General classes of alternatives:
1. No Action
2. Transportation System Management (TSM)
3. Transportation Demand Management (TDM)
4. Float and Ferry
5. Rail Tunnel
6. Multimodal Tunnel

We will address each after the break.
### Working Assumptions

**Alternatives Have to Match Market Opportunities**

<table>
<thead>
<tr>
<th></th>
<th>TSM/TDM</th>
<th>Float/Ferry</th>
<th>Tunnel</th>
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<tr>
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<td><img src="https://via.placeholder.com/15" alt="Yellow" /></td>
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<td><img src="https://via.placeholder.com/15" alt="Green" /></td>
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<tr>
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<td><img src="https://via.placeholder.com/15" alt="Yellow" /></td>
<td><img src="https://via.placeholder.com/15" alt="Yellow" /></td>
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<tr>
<td>Divert Other Trucks</td>
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### Questions?
Scoping
Goals and Objectives

- Develop project goals and objectives with stakeholders
- Proposed goals
  - Reduce congestion on major freight corridors within NY/NJ/CT metropolitan area
  - Improve performance of Cross Harbor freight transportation system for freight shippers, receivers, and carriers
  - Provide flexibility and reliability in regional freight movement
  - Improve safety and security on regional transportation network
  - Improve regional environmental quality
**Scoping Methodologies**

- Agree upon methodologies to be used in the project
- Development of EIS methodology, comprised of:
  - Alternatives Evaluation
  - Conceptual Engineering and Cost Estimating
  - Market Demand Forecasting
  - Highway and Rail Network Analysis
  - Environmental Assessment
  - Economic Analysis

**Scoping Long List of Project Alternatives**

- 1999 MIS and 2004 DEIS
- Understanding of freight markets and the kinds of services necessary to serve them
- Meetings held with PANYNJ, NJTPA, NYMTC, NJDOT, NJ Transit, LIRR, NJ Turnpike Authority to identify no-action projects for 2035
- Inventory of potential TSM/TDM strategies
- Inventory of potential float/ferry and railyard sites
- Awareness of innovative technologies and services
**Fatal Flaw Analysis**

- Eliminates clearly infeasible alternatives based on:
  - Relationship to goals
  - Engineering and technological feasibility
  - Institutional feasibility
  - Public and agency input from scoping process
- Level of expected demand is not part of the fatal flaw analysis
- **Outcome**: A range of potentially feasible alternatives that can be advanced to screening

**Screening Analysis**

*Logistics and Market Demand*

- Screening based on logistics and market demand
  - Does the alternative meet shipper/receiver needs?
  - How much demand would it generate?
- Estimate demand for every alternative based on:
  1. its specific performance criteria
  2. factor weights from the Mode Choice Model, and
  3. underlying freight volumes (current and future) by commodity class and origin-destination pair
### Screening Analysis
**Highway and Rail Network Analysis**

- Estimate high-level highway and rail effects
  - Number of truck trips added/subtracted
  - Number of trains added/subtracted

  Comprehensive network modeling occurs in Detailed Evaluation

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### Screening Analysis
**Economic and Financial Performance**

- Likelihood of generating public benefit
- Likelihood of generating private benefit
  - Shipper/receiver cost savings
  - Carrier benefits
Screening Analysis

Threshold Criteria

- Previous steps provide key metrics for each alternative based on logistics and market demand, highway and rail network performance, and economic and financial effects.
- Need to set threshold criteria, representing the minimum level of performance for an alternative to be carried forward into detailed evaluation.
- Need to see results of screening analyses.
- Need to work iteratively with study partners to develop these criteria.

Detailed Evaluation

Highway and Rail Network Analysis

- Highway network -- travel time and congestion
  - Based on NJRTM-E and NYMTC BPM, with crossing trips matched and new truck trip tables.
  - Can model alternatives by (a) changing highway links, and/or (b) changing truck trip tables.
- Rail network – capacity and chokepoints
  - New planning level model of the freight rail network in 54 counties, with national flows included.
  - Determine current and future line-level capacity (trains per day) and volumes (freight and pax).
  - Estimate "V/C" (analogous to highways), and change links and/or volumes to test alternatives.
**Detailed Evaluation**

*Economic Impact Analysis*

- Detailed analysis of public benefit
  - Highway network model outputs (changes in VMT, delay, emissions) can be monetized
  - Jobs, taxes from increased freight movement, intermediate handling, and business attraction

- Detailed analysis of private benefit
  - Shipper/receiver cost savings
  - Carrier benefits (must be a profit incentive for truckers, railroaders and others in the logistics chain to actually use the alternative)

**Detailed Evaluation**

*Engineering and Environment*

- Conceptual engineering and operational analysis
  - Infrastructure requirements
  - Yard locations and dimensions
  - Capital and O&M cost estimating

- Environmental analysis
  - Indirect effects
  - Direct effects
### Detailed Evaluation

**Refinement of Alternatives**

- Iterative refinement of alternatives
  - Fine-tuning of locations and routes, service characteristics and pricing
  - Sensitivity Analysis
  - Maximize market capture and economic benefit, minimize highway and rail network impacts
  - Benefit/cost

### Tier I Environmental Impact Statement

**Documentation of the Assessment Results**

- **Preliminary Draft EIS**
  - Review and comment by co-lead and cooperating agencies

- **Draft EIS**
  - Public review and comment period
  - Public hearings

- **Final EIS**
  - Response to comments
  - Record of Decision
Questions?

Development of Potential Alternatives

- 1999 MIS and 2004 DEIS
- Comments generated in response to the 2004 DEIS
- New agency inputs
- Understanding of freight markets and service
- Inventory of potential float/ferry and railyard sites
- Awareness of innovative technologies and services
- Outreach to Agencies and Stakeholders will continue
Potential Alternatives

- **Build Alternatives**
  - Float
  - Ferry
  - Rail Tunnel
  - Multimodal Tunnel
- Transportation System Management Alternative
- Transportation Demand Management Alternative
- No Action Alternative

Potential Build Alternatives

1. Float
2. Ferry
3. Rail Tunnel
4. Multimodal Tunnel

All alternatives include the required supporting landside facilities.
**Float and Ferry Options**
*Potential Build Alternatives*

A. Expanded Rail Car Float System  
B. Container Float  
C. Truck Float System  
D. Truck Ferry

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**Expanded Rail Car Float System**
*Potential Build Alternatives*

Greenville  
65th Street Yard  
China  
Turkey
Expanded Rail Car Float System
Potential Build Alternatives

Other Float and Ferry Options
Potential Build Alternatives

Potential Float Routes

Container Floats
- Kenya
- Antwerp, Belgium

Truck Float
- Detroit-Windsor, Michigan

Truck Ferry
- Greece
- Sydney Harbor
Other Float and Ferry Options
Potential Build Alternatives

Potential Float/Ferry Routes
- Container Float
- Truck Float System
- Truck Ferry

Rail Tunnel Options
Potential Build Alternatives

Single-track versus Double-track
Rail Tunnel Options
Potential Build Alternatives

Single Stack

Double Stack

And the difference is

Conventional rail car service (intermodal, bulk unit train) versus “Open Technology” (e.g. truck bodies on rail flatcars)
Chunnel Shuttle
Potential Build Alternatives

Traditional Long-Haul Service versus Non-Traditional Shorter-Haul "Shuttle Rail" Services

Potential Build Alternatives
Rail Tunnel Options
Multimodal Tunnel Options
Potential Build Alternatives

A. Emergency Access for Vehicles
B. Scheduled Truck Access
C. Roll-On/Roll-Off Vehicle Trains
D. Automated-Guided-Vehicle Service

Dual-Use Tunnel
Potential Build Alternatives

Alaska Anton Anderson Memorial Tunnel
Automated Guided Vehicles
Potential Build Alternatives

- Emergency Access for All Vehicles
- Scheduled Truck Access

Multimodal Tunnel Options
Potential Build Alternatives

- Emergency Access for All Vehicles
- Scheduled Truck Access
**Potential TSM Alternative**

- Transportation System Management (TSM) – maximize utilization and efficiency of existing transportation network with relatively low-cost projects to improve its functional capacity
- Provide additional freight movement capacity beyond those committed projects included in No Action Alternative
**TDM Alternative**

- Aims to reduce, redistribute or “better fit” the amount of demand to the available capacity.
- Includes measures such as:
  - Truck congestion pricing incentives
  - Passenger vehicle congestion pricing incentives
  - Other fees, regulations or policies similarly affecting transportation behavior and choices

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**No Action Alternative**

Projects currently programmed, planned, or reasonably expected for the study area by 2035, independent of the Cross Harbor Freight Program.

- **Highway and Bridge Improvements**
  - “Existing and committed” build scenarios from NYMTC and NJTPA highway models
  - Sources: NYMTC, NYSDOT, NJTPA, NJDOT, or other agencies.

- **Railroad Improvements**
  - Remaining PANYNJ East and West of Hudson rail program not yet constructed
  - Other “independent utility” projects being advanced by PANYNJ, particularly at Greenville Yard
  - Programmed or planned rail improvements of NJDOT or NYSDOT
  - Region’s freight and passenger railroads.

- **Port and Airport Projects**
No Action Alternative
Capacity Enhancements in NJ (Draft)

No Action Alternative
Capacity Enhancements in NY (Draft)
**Issue #1**

**Feedback on Goals**

Proposed Goals
- Reduce congestion on major freight corridors within NY/NJ/CT metropolitan area
- Improve performance of Cross Harbor freight transportation system for freight shippers, receivers, and carriers
- Provide flexibility and reliability in regional freight movement
- Improve safety and security on regional transportation network
- Improve regional environmental quality and sustainability

Will the proposed goals serve the project purpose and meet the need of the region?  
What objectives could help to achieve each of these goals?

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**Issue #2**

**Feedback on Preliminary “Long List” Alternatives**

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<tr>
<th>Alternatives</th>
<th>Service/Strategy</th>
<th>Route / Alignment</th>
<th>Supporting Terminals and Facilities</th>
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<td>TSM</td>
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<tr>
<td>TDM</td>
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<td>Rail Tunnel and</td>
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<td>Greenville to 65th St.</td>
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<td>Long Island</td>
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Summary and Next Steps

Keywords to take home
- Working Assumptions
- Alternatives Methodology
- Potential Alternatives

We will seek your input
✓ In Scoping Process
✓ In Alternatives Screening
✓ In Detailed Evaluation
✓ In Tier I EIS