CROSS HARBOR FREIGHT PROGRAM

Alternatives Workshop

Development and Screening

March 24, 2010

Purpose of Today's Workshop

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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

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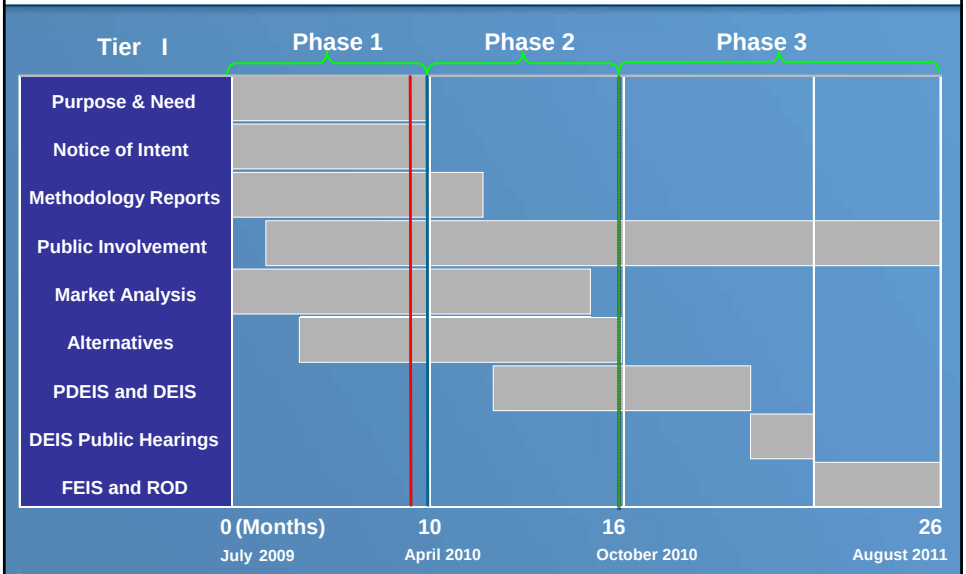

Key Questions

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- 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

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

Working Assumptions
Market Opportunities

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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

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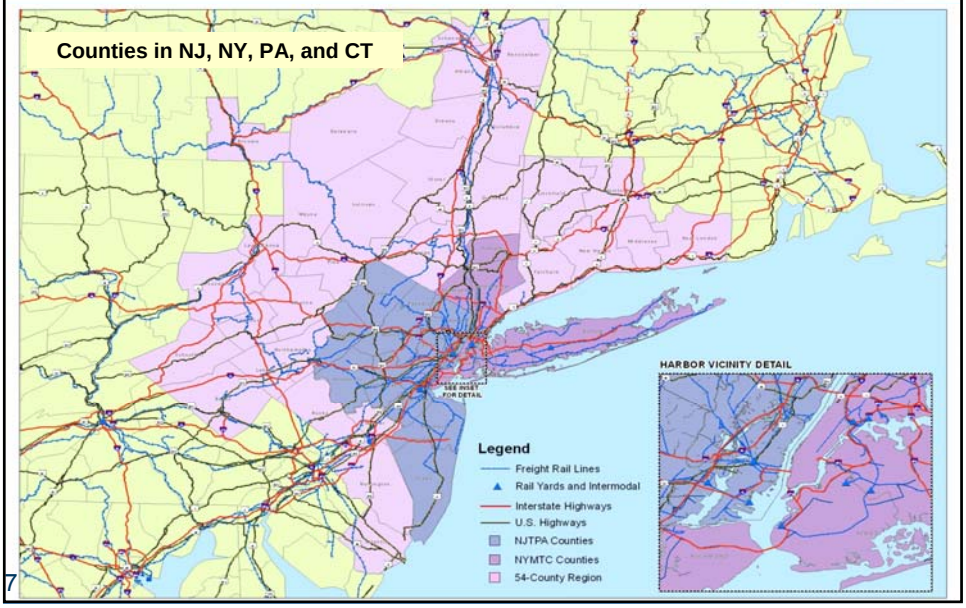

Working Assumptions

Opportunity #1, Grow Existing Rail Markets

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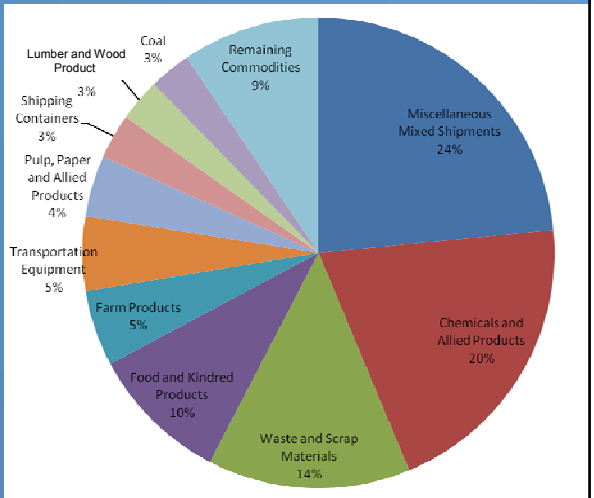
Rail Tonnage, NY and NJ Study Region Counties, 2007

Direction	Carload Units	Intermodal Units
Inbound	821,819	518,720
Outbound	602,852	523,668
Intra-regional	7,304	80
Through	n/a	n/a
Total	1,431,975	1,042,468

Source: Surface Transportation Board Carload Waybill Sample, 2007



Working Assumptions

Opportunity #1, Grow Existing Rail Markets

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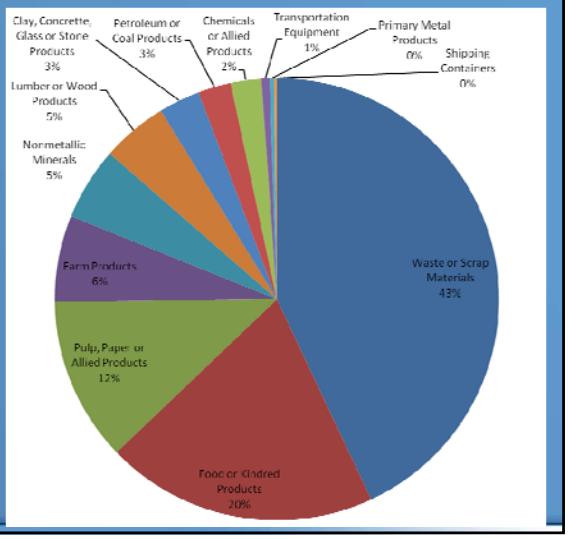
Rail Tonnage for Selected East of Hudson Counties, 2007
(Bronx, Kings, Nassau, Queens, Suffolk, and Westchester)

Direction	Carload Units	Intermodal Units
Inbound	24,208	0
Outbound	19,912	0
Intra-regional	0	0
Through	-	-
Total	44,120	0

Source: Surface Transportation Board
Carload Waybill Sample, 2007



Working Assumptions

Opportunity #2, Move Rail Trip Ends

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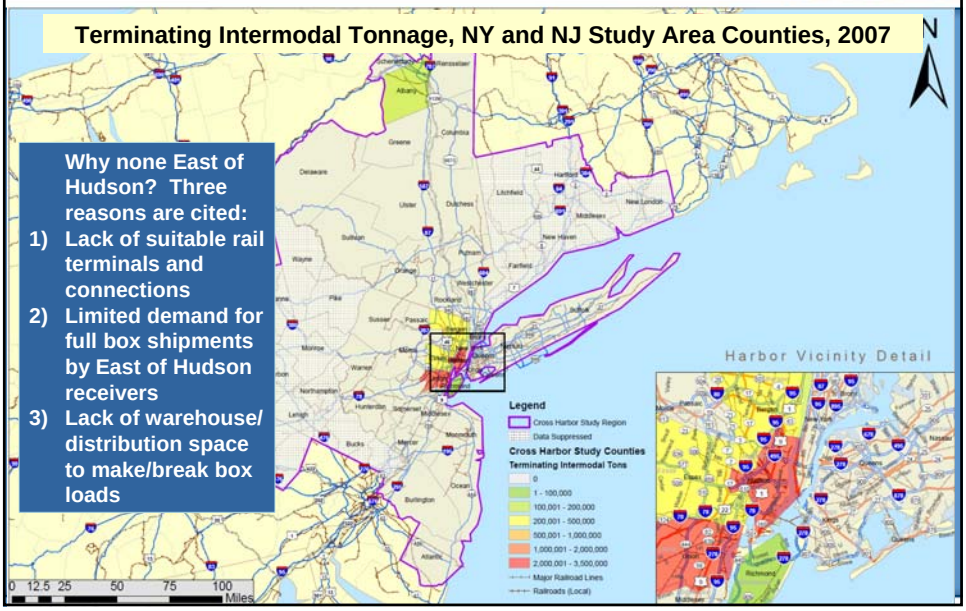
Terminating Intermodal Tonnage, NY and NJ Study Area Counties, 2007



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

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Truck Counts, Six Non-Consecutive Days During Three-Month Periods

NS Croxton	Total Gate Units	George Washington
October - December 2001	2,419	296 (12%)
January - March 2002	2,356	294 (12%)
July - September 2002	2,422	402 (17%)

CSX Kearny/Little Ferry/North Bergen	Total Gate Units	George Washington
September - November 2001	3,281	386 (12%)
January - March 2002	2,913	345 (12%)
April - June 2002	3,135	322 (10%)
July - September 2002	2,423	432 (18%)

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

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Transearch Data	2007 (Tons)	2035 (Tons)	Growth	Rate
All Truck Tonnage	1,097,721,109	1,535,076,042	40%	1.2%
Long Haul Inbound to Study Area	160,248,704	277,021,275	73%	2.0%
Long Haul Outbound from Study Area	48,224,764	75,617,511	57%	1.6%
Long Haul Inbound from WOH to Study Area EOH	78,881,196	141,883,428	80%	2.1%
Long Haul Outbound to WOH from Study Area EOH	14,142,654	19,712,048	39%	1.2%

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

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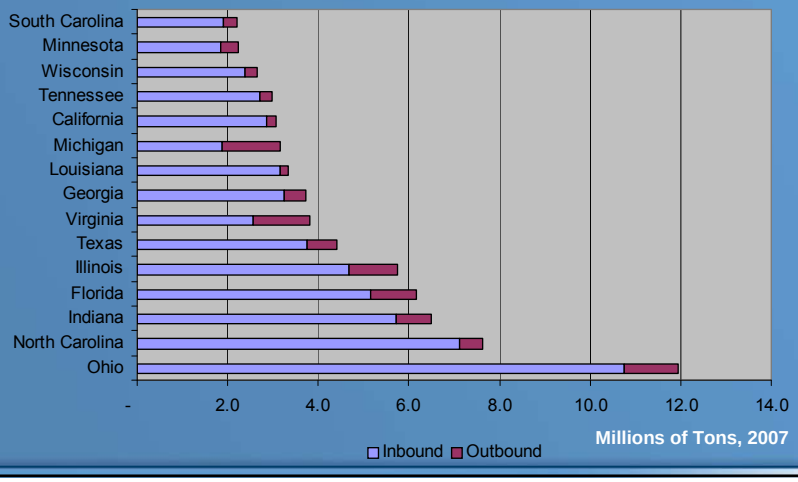
- Long haul trucks to EOH are mostly originating in Ohio, North Carolina, Indiana, Florida, Illinois, and Texas.
- Long haul trucks from EOH are terminating in a variety of states.



Working Assumptions

Opportunity #3, Divert Long-Haul Trucks

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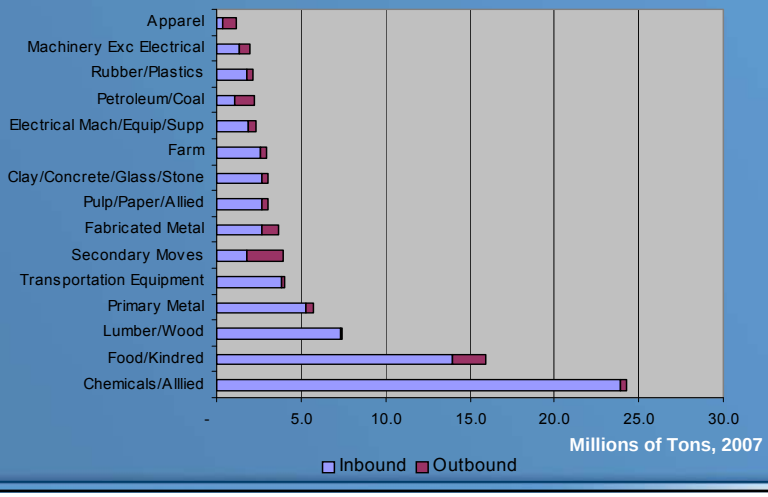
- Long haul trucks to EOH carry mostly chemicals and food.
- Long haul trucks from EOH mostly carry secondary traffic, food, fuel, and other products.



Working Assumptions

Opportunity #4, Address Shorter-Haul Trucks

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Transearch Data	2007	2035	Growth	Rate
All Truck Tonnage	1,097,721,109	1,535,076,042	40%	1.2%
Mid-Haul Inbound from WOH to Study Area EOH	63,401,213	84,107,644	33%	1.0%
Mid-Haul Outbound to WOH from Study Area EOH	21,264,190	25,148,309	18%	0.6%
Short-Haul Inbound from Study Area WOH to Study Area EOH	80,357,857	108,026,772	34%	1.1%
Short-Haul Outbound to Study Area WOH from Study Area EOH	30,884,990	38,179,755	24%	0.8%

- **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.**

Working Assumptions

Families of Potential Alternatives

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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

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	TSM/TDM	Float/Ferry	Tunnel	
			Rail	Multimodal
Proven Rail Markets	🟡	🟢	🟢	🟢
Relocate Rail Trip Ends				
Intermodal	🟡	🟡	🟡	🟡
Other	🟡	🟢	🟢	🟢
Divert Long Haul Trucks	🟡	🟡	🟢	🟢
Divert Other Trucks	🟡	🟡	🟡	🟢

Questions?

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Alternatives Evaluation

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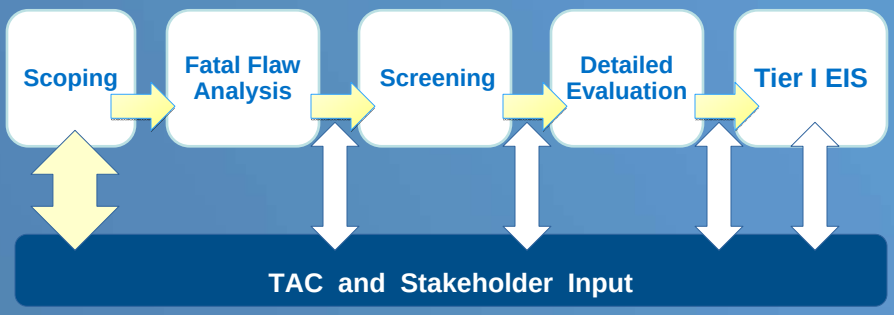

Scoping
Goals and Objectives

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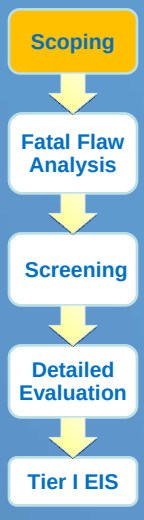
- Develop project goals and objectives with stakeholders
- Proposed goals
  - Reduce congestion on major freight corridors within NY/NJ/CT metropolitan area
  - Improve performance of Cross Harbor freight transportation system for freight shippers, receivers, and carriers
  - Provide flexibility and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



Scoping
Methodologies

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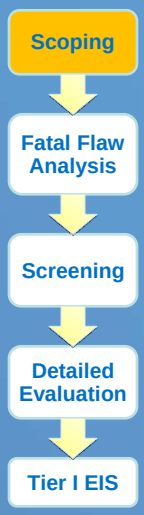
- Agree upon methodologies to be used in the project
- Development of EIS methodology, comprised of:
  - Alternatives Evaluation
  - Conceptual Engineering and Cost Estimating
  - Market Demand Forecasting
  - Highway and Rail Network Analysis
  - Environmental Assessment
  - Economic Analysis



Scoping
Long List of Project Alternatives

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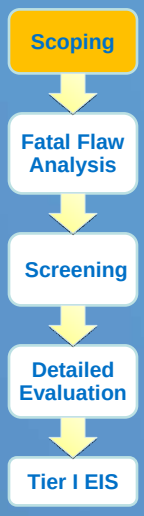
- 1999 MIS and 2004 DEIS
- Understanding of freight markets and the kinds of services necessary to serve them
- Meetings held with PANYNJ, NJTPA, NYMTC, NJDOT, NJ Transit, LIRR, NJ Turnpike Authority to identify no-action projects for 2035
- Inventory of potential TSM/TDM strategies
- Inventory of potential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



Fatal Flaw Analysis

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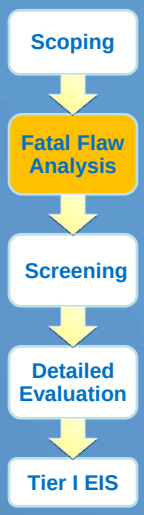
- Eliminates clearly infeasible alternatives based on:
  - Relationship to goals
  - Engineering and technological feasibility
  - Institutional feasibility
  - Public and agency input from scoping process
- Level of expected demand is not part of the fatal flaw analysis
- **Outcome: A range of potentially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



Screening Analysis

Logistics and Market Demand

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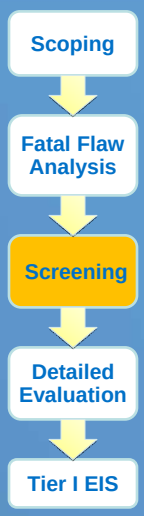
- Screening based on logistics and market demand
  - Does the alternative meet shipper/receiver needs?
  - How much demand would it generate?
- Estimate demand for every alternative based on:
  - (a) its specific performance criteria
  - (b) factor weights from the Mode Choice Model, and
  - (c) underlying freight volumes (current and future) by commodity class and origin-destination pair



Screening Analysis
Highway and Rail Network Analysis

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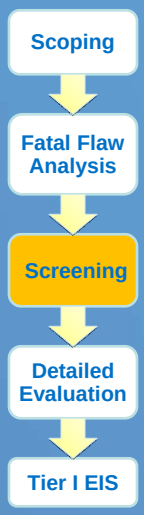
Estimate high-level highway and rail effects

- Number of truck trips added/subtracted
- Number of trains added/subtracted

Comprehensive network modeling occurs in Detailed Evaluation



Screening Analysis
Economic and Financial Performance

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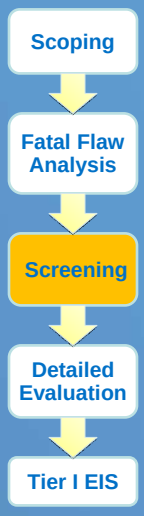
- Likelihood of generating public benefit
- Likelihood of generating private benefit
  - Shipper/receiver cost savings
  - Carrier benefits



Screening Analysis

Threshold Criteria

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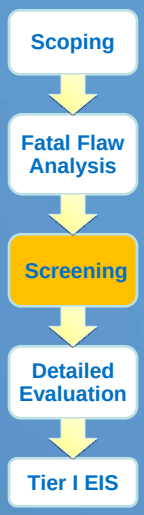
- Previous steps provide key metrics for each alternative based on logistics and market demand, highway and rail network performance, and economic and financial effects
- Need to set threshold criteria, representing the minimum level of performance for an alternative to be carried forward into detailed 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

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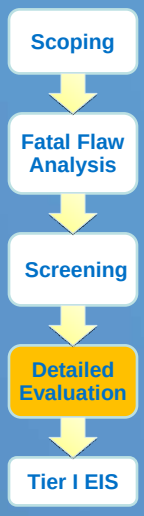
- Highway network -- travel time and congestion
  - Based on NJRTM-E and NYMTC BPM, with crossing trips matched and new truck trip tables
  - Can model alternatives by (a) changing highway links, and/or (b) changing truck trip tables
- Rail network – capacity and chokepoints
  - New planning level model 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

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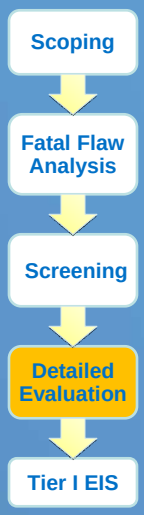
- Detailed analysis of public benefit
  - Highway network model outputs (changes in VMT, delay, emissions) can be monetized
  - Jobs, taxes from increased freight movement, intermediate handling, and business attraction
- Detailed analysis of private benefit
  - Shipper/receiver cost savings
  - Carrier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

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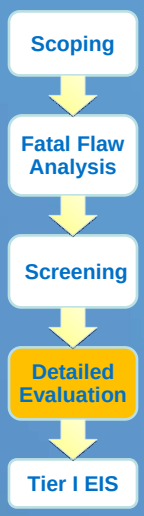
- Conceptual engineering and operational analysis
  - Infrastructure requirements
  - Yard locations and dimensions
  - Capital and O&M cost estimating
- Environmental analysis
  - Indirect effects
  - Direct effects



Detailed Evaluation
Refinement of Alternatives

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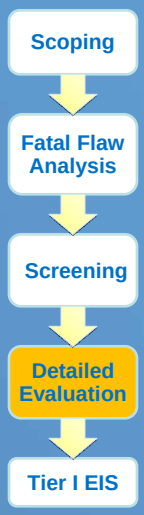
- Iterative refinement of alternatives
  - Fine-tuning of locations and routes, service characteristics and pricing
  - Sensitivity Analysis
  - Maximize market capture and economic benefit, minimize highway and rail network impacts
  - Benefit/cost



Tier I Environmental Impact Statement

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Documentation of the Assessment Results

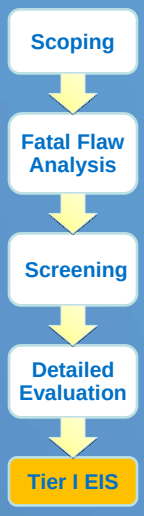
Preliminary Draft EIS
Review and comment by co-lead and cooperating agencies

▼

Draft EIS
Public review and comment period
Public hearings

▼

Final EIS
Response to comments
Record of Decision



Questions?

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Development of Potential Alternatives

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- 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

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

Potential Build Alternatives

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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

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

Expanded Rail Car Float System
Potential Build Alternatives

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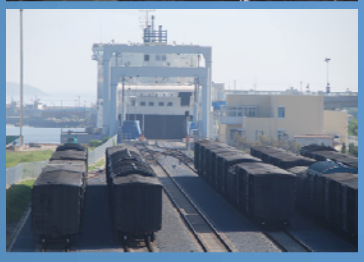
Greenville

65th Street Yard

Turkey



China

Expanded Rail Car Float System

Potential Build Alternatives

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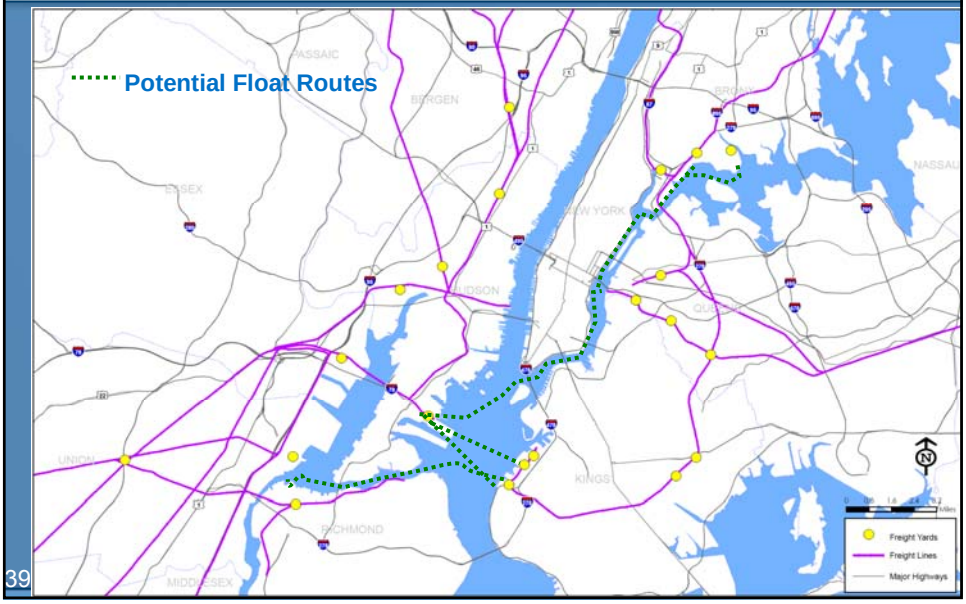

Other Float and Ferry Options

Potential Build Alternatives

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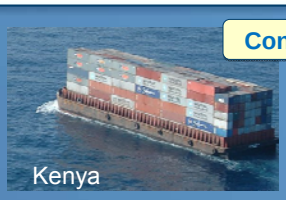
Container Floats


Kenya

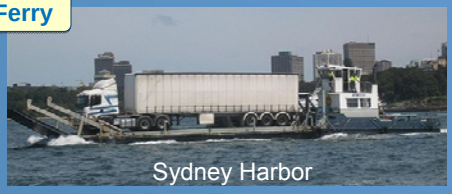
Antwerp, Belgium

Truck Float

Detroit-Windsor, Michigan

Truck Ferry

Greece


Sydney Harbor

Other Float and Ferry Options

Potential Build Alternatives

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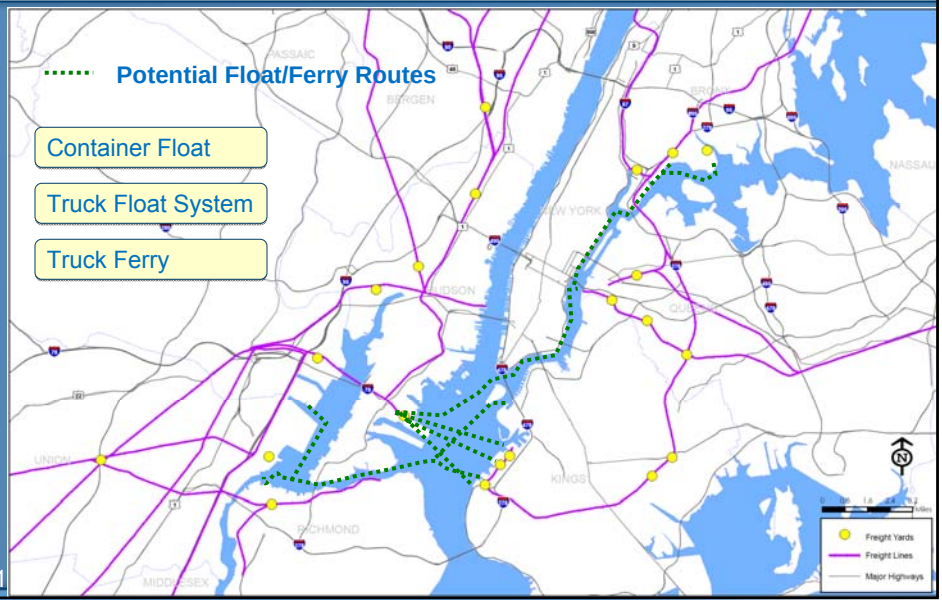

Rail Tunnel Options

Potential Build Alternatives

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Single-track

versus

Double-track

Rail Tunnel Options
Potential Build Alternatives

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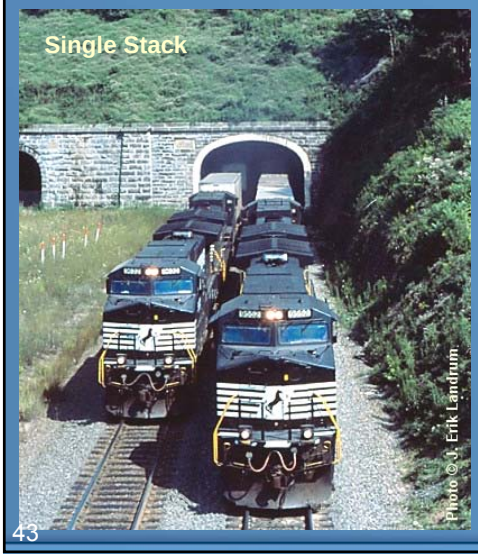

Rail Tunnel Options
Potential Build Alternatives

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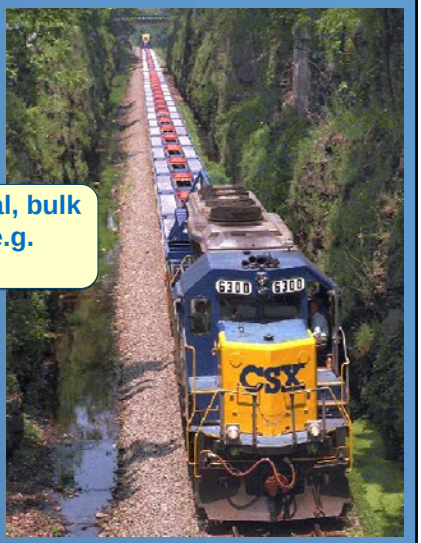

Conventional rail car service (intermodal, bulk unit train) versus “Open Technology” (e.g. truck bodies on rail flatcars)

Chunnel Shuttle
Potential Build Alternatives

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

Potential Build Alternatives
Rail Tunnel Options

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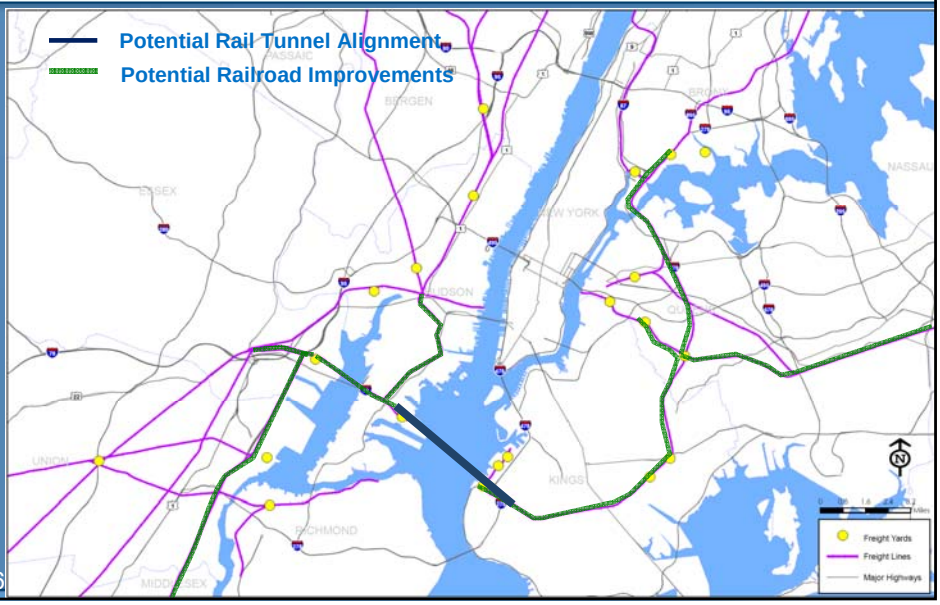

Multimodal Tunnel Options
Potential Build Alternatives

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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

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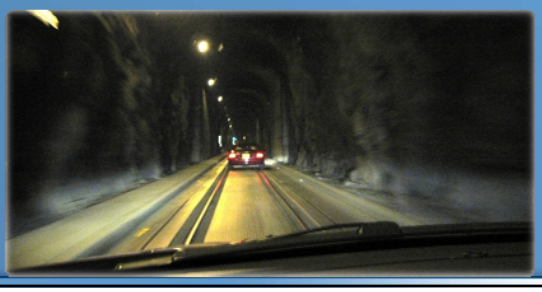
Alaska Anton Anderson Memorial Tunnel



Automated Guided Vehicles

Potential Build Alternatives

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Multimodal Tunnel Options

Potential Build Alternatives

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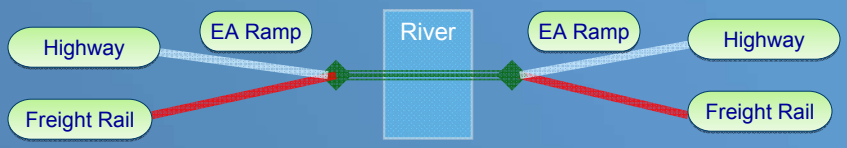
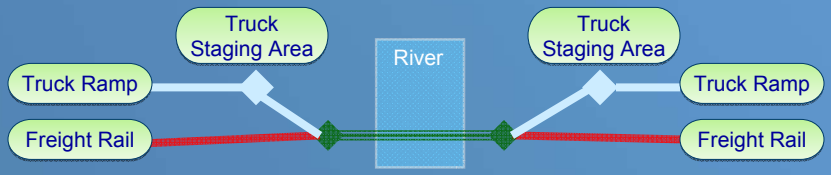
- Emergency Access for All Vehicles



- Scheduled Truck Access



Multimodal Tunnel Options

Potential Build Alternatives

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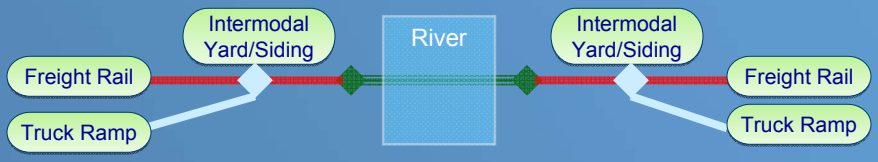
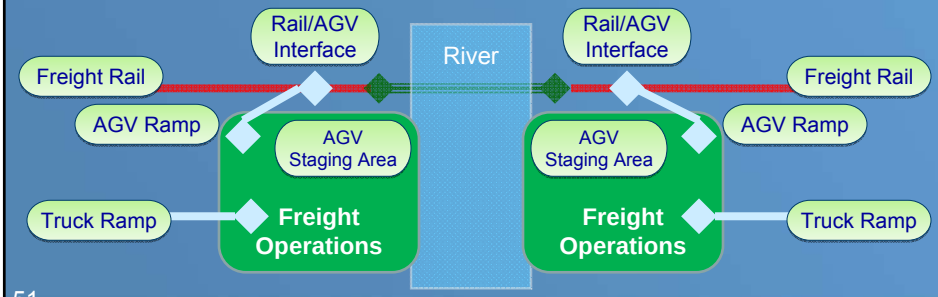
- Roll-On/Roll-Off Vehicle Trains



- Automated-Guided-Vehicle (AGV) Service



Supporting Freight Facilities (Draft)

Potential Build Alternatives

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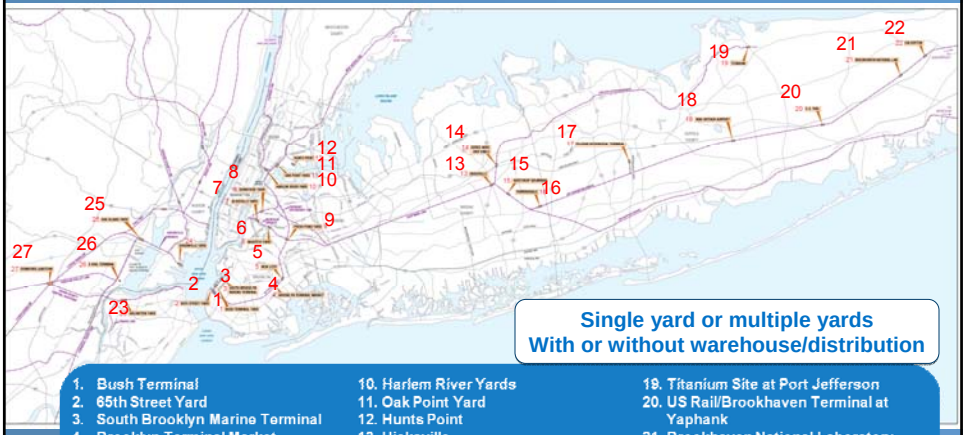

Single yard or multiple yards
With or without warehouse/distribution

1. Bush Terminal
2. 65th Street Yard
3. South Brooklyn Marine Terminal
4. Brooklyn Terminal Market
5. New Lots, East New York
6. Maspeth Yard & Phelps Dodge Site
7. Blissville Yard
8. Sunnyside Yard
9. Fresh Pond Yard
10. Harlem River Yards
11. Oak Point Yard
12. Hunts Point
13. Hicksville
14. Cerro Wire & Cable
15. Northrop Grumman
16. Farmingdale
17. Pilgrim
18. MacArthur Airport
19. Titanium Site at Port Jefferson
20. US Rail/Brookhaven Terminal at Yaphank
21. Brookhaven National Laboratory
22. Calverton
23. Arlington Yard
24. Greenville Yard
25. Oak Island Yard
26. E-Rail Terminal
27. Cranford Junction

Potential TSM Alternative

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- 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

Potential TSM Alternative

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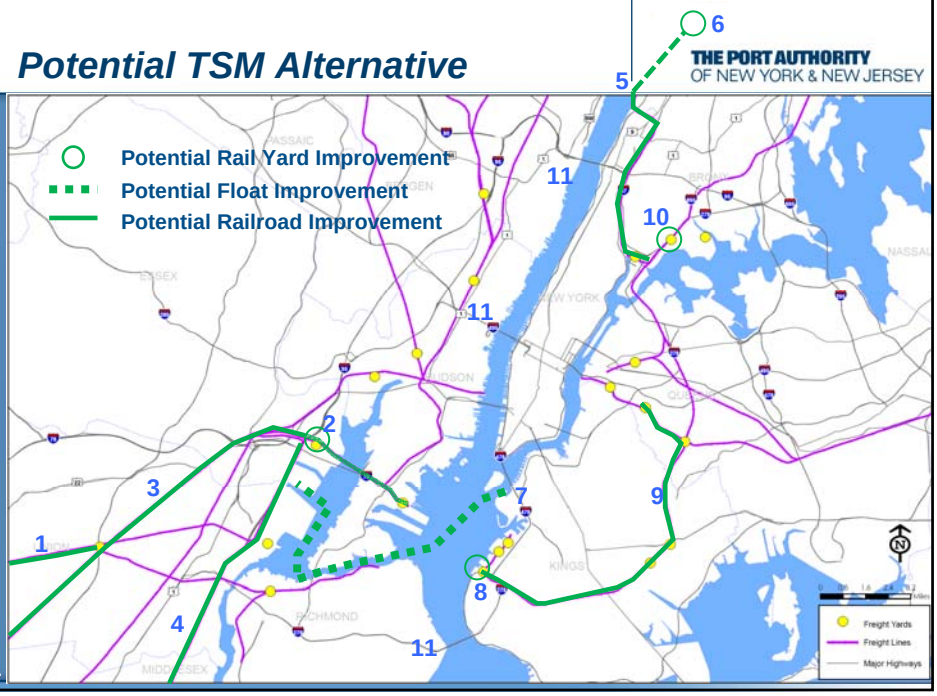

TDM Alternative

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- 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

No Action Alternative

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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)

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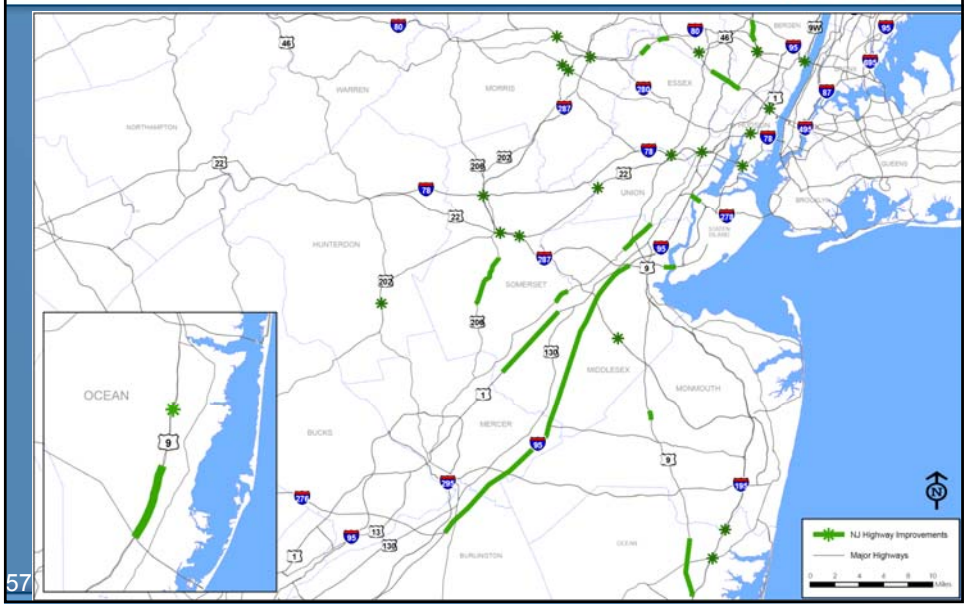

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No Action Alternative

Capacity Enhancements in NY (Draft)

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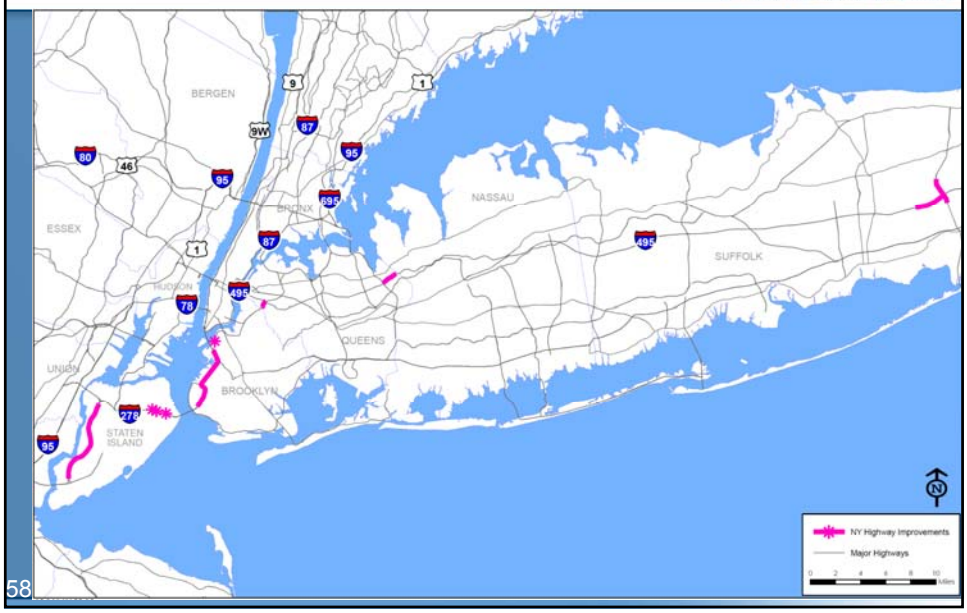

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No Action Alternative

Railroad Improvements (Draft)

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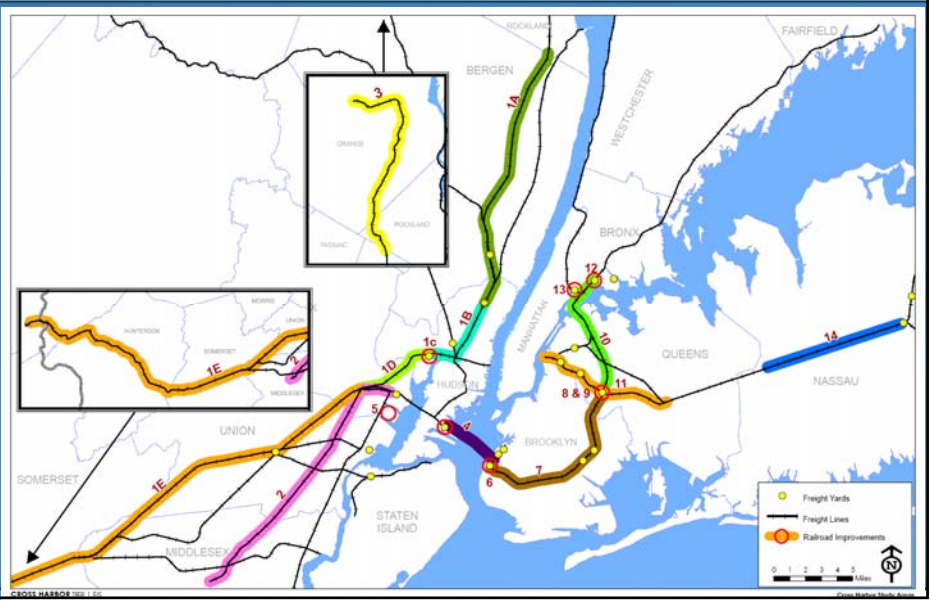

Questions?

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Issue #1

Feedback on Goals

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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?

Issue #2

Feedback on Preliminary "Long List" Alternatives

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Alternatives	Service/Strategy	Route / Alignment	Supporting Terminals and Facilities
TSM	.....	.....	.....
TDM	.....	.....	.....
Ferry/Float	Railcar Floats Container Floats Truck Floats Truck Ferry	Greenville to Port Newark Howland Hook SBMT/51st St/65th St Greenpoint/Hunters Point Oak Point Yard/Hunts Point Others	New Jersey Brooklyn Queens Bronx Others
Rail Tunnel and Service	Single Stack Double Stack Open Technology Short Haul	Greenville to 65th St.	New Jersey Brooklyn Queens Bronx Long Island Others
Multimodal Tunnel	Emerg. Access Scheduled Trucks Ro-Ro Shuttle AGVs	Greenville to 65th St.	New Jersey Brooklyn Queens Bronx Long Island Others

EIS Schedule

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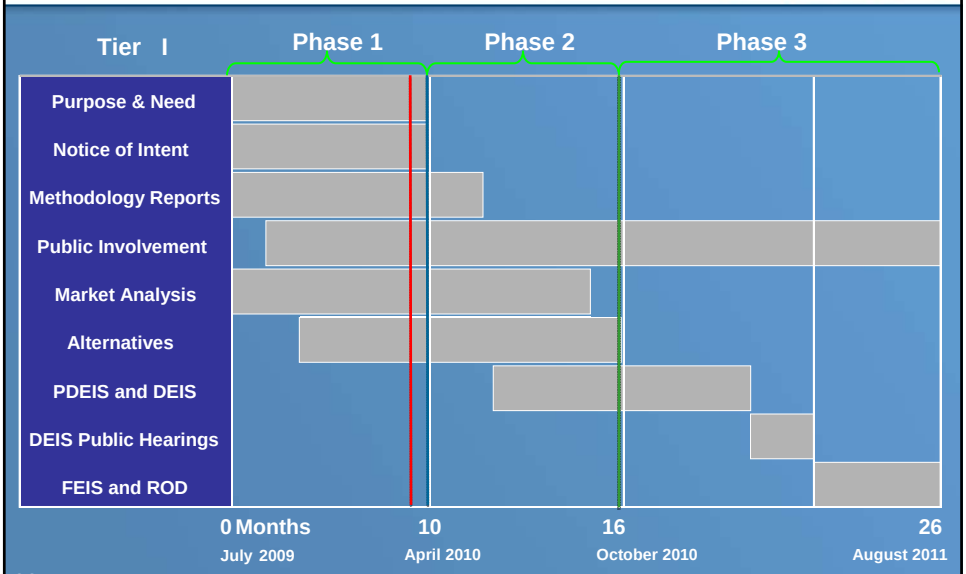

Summary and Next Steps

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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