



## Welcome

# Goethals Bridge Replacement Environmental Impact Statement (GBR EIS)

**Environmental Task Force (ETF) and  
Technical Advisory Committee (TAC):  
Special Combined Update Meeting  
September 6, 2007**

Lead Federal Agency:



Consultant Team:  
Berger/PB Joint Venture



Project Sponsor:



THE PORT AUTHORITY OF NY & NJ

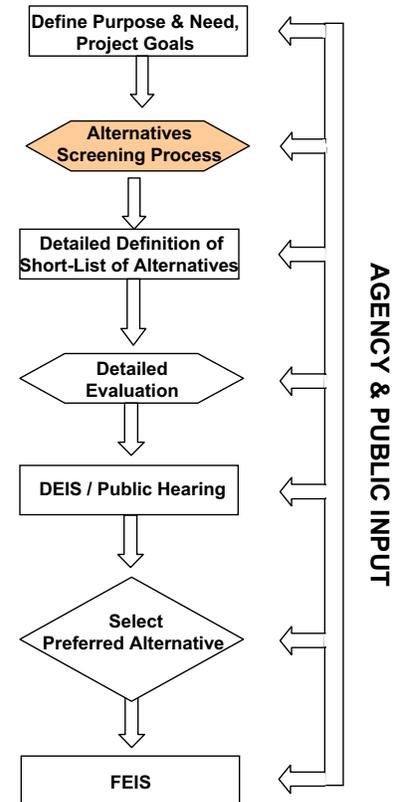
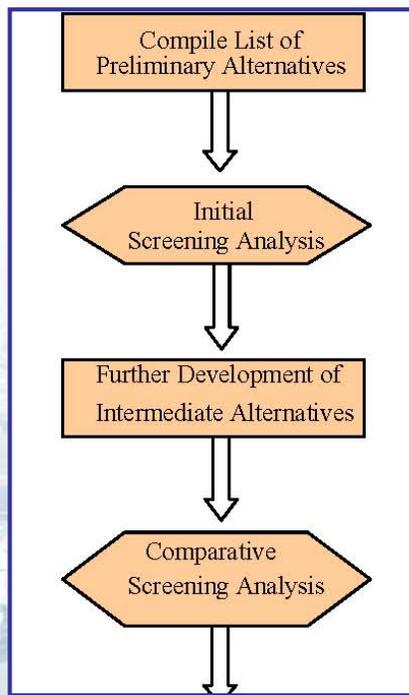


## Agenda

- Recap of Last ETF and TAC Meetings (6/1/06)
  - Review of screening process and alternatives selected
- Refinements to the four build alternatives advanced for detailed study
  - Reasons for the refinements
  - Details of the refinements
  - Comparative screening results of refined alternatives
- Current status of DEIS preparation



## Context of Alternatives Screening Process Previously Presented



## Comparative Screening Criteria

- Future traffic conditions on Goethals Bridge and its approaches
- Future traffic conditions on other Staten Island bridges or in region
- Ancillary non-SOV commutation opportunities and feasibility (i.e., BRT, ferry)
- Environmental factors
- Construction and cost factors



## Alternatives Originally Advanced for Detailed Assessment

- Single six-lane bridge to be sited entirely south or north of existing bridge alignment
  - Six-lane Bridge Replacement – South
  - Six-lane Bridge Replacement – North
- Twin three-lane bridges to be sited south or north of existing bridge, but incorporating alignment of existing structure
  - Twin Replacement Bridges – South
  - Twin Replacement Bridges – North
- All alternatives included demolition of the existing structure



## Concept Design of Originally Advanced Build Alternatives

- Cable-stayed bridge determined to be most efficient design for addressing site characteristics
- Main span length of 900 feet
- Tower heights of 350 feet above MSL
- Navigational clearance proposed for a minimum of 135 feet above MHW
- 25-ft. right-of-way width on both sides of replacement bridge and approach spans
- Temporary construction access road located generally below proposed replacement bridge and approach spans



## Aviation Constraints to Original Concept Design

- Form 7460, Notice of Construction or Alteration, submitted to Federal Aviation Administration (FAA) for review
- FAA identified concern with proposed 350-ft. height of bridge towers
  - Identified during stakeholder outreach process
  - 350-ft. high towers were deemed a hazard to air navigation at Newark Liberty International Airport
- PANYNJ conducted its own aeronautical studies involving discussions with FAA and airline representatives
- Maximum tower height determined to be 272-ft. above MSL

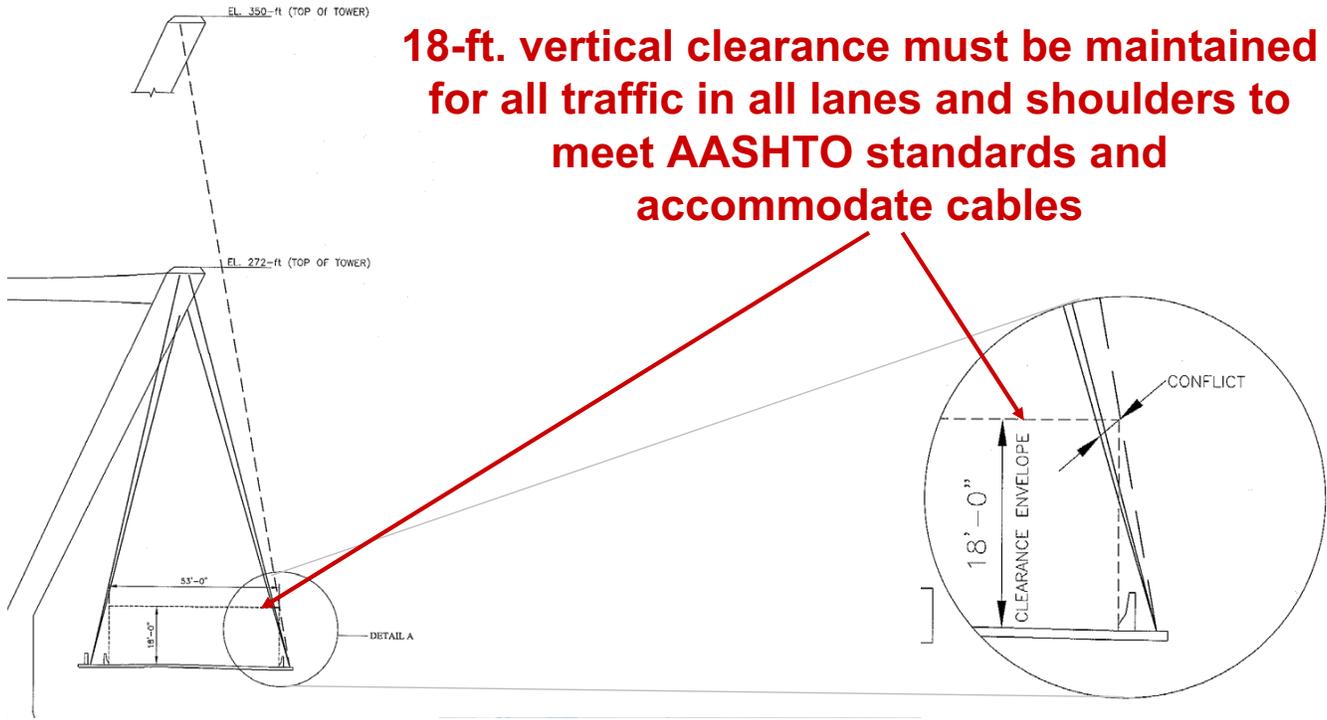


## Refinements to Proposed Build Alternative Concepts

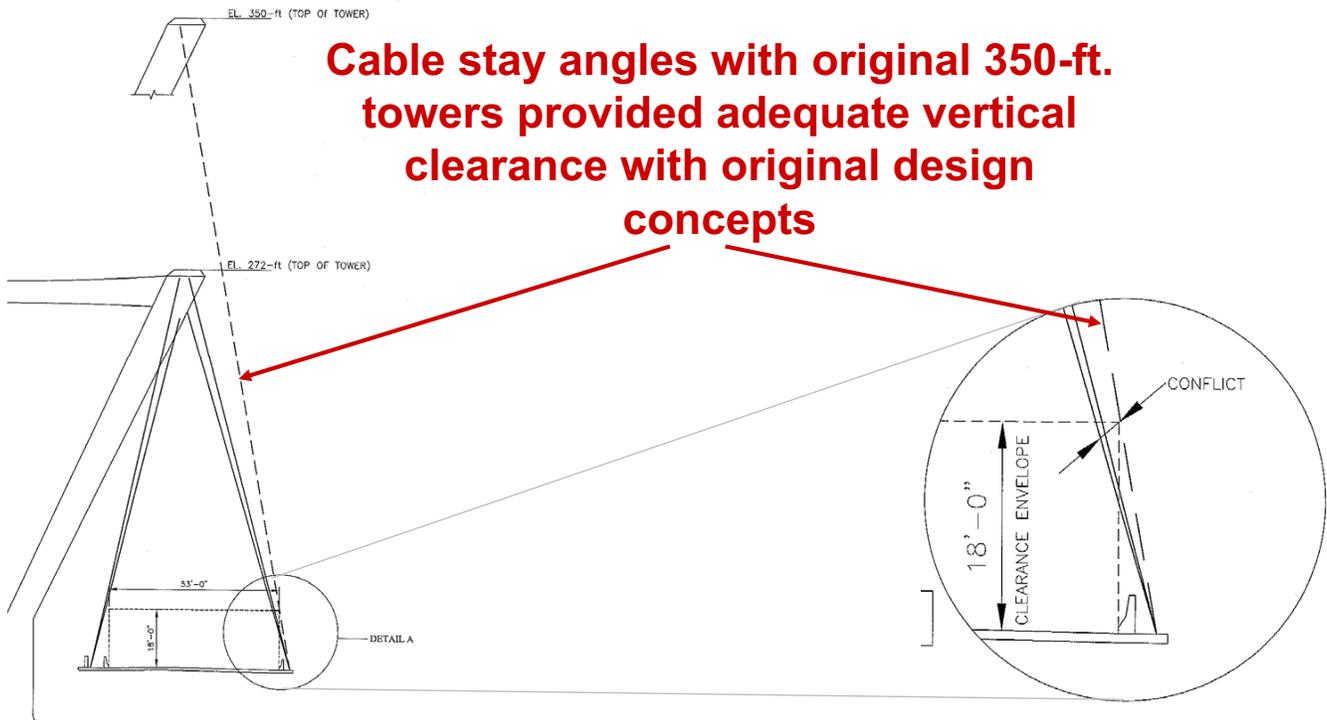
- Decrease in tower height from 350-ft. to 272-ft. necessitated new design studies and redesign of main span towers
- Studies confirmed the cable-stayed design as most efficient for addressing site characteristics
- Refinements necessary to meet roadway clearance requirements due to lowered tower height and resulting new cable stay geometry



# Refinements to Proposed Build Alternative Concepts (cont'd)

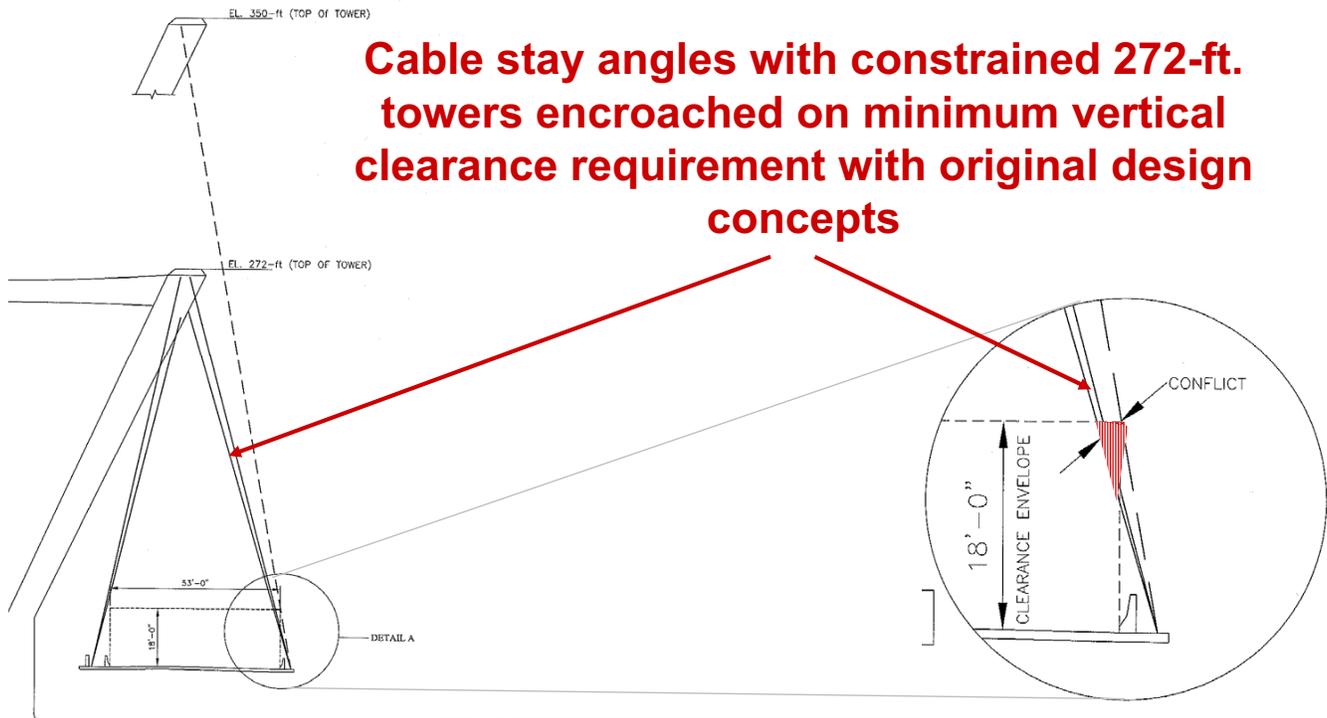


# Refinements to Proposed Build Alternative Concepts (cont'd)





## Refinements to Proposed Build Alternative Concepts (cont'd)



## Refined EIS Alternatives

- One design concept applicable to all alternatives
- Four alignments being considered
- Two construction staging concepts, dependent on the particular alignment





## Refined EIS Alternatives

- ***One design concept applicable to all alternatives***
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## Single Bridge / Dual Deck Design Concept

Single Bridge

Two Decks

Towers Located  
Between Decks

Cable-Stay  
Supported  
Decks



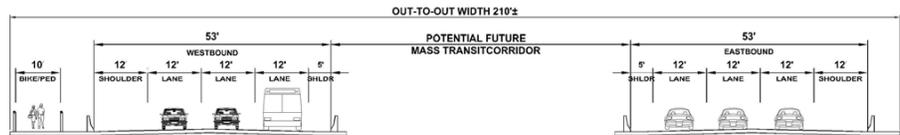


## Refined Alternative Concept Design Dimensions

Total width of  
~210 feet

Each deck  
contains three  
12-ft. wide lanes

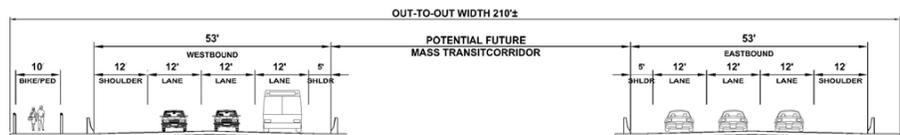
Each deck  
contains 12-ft.  
wide outer  
shoulder and 5-ft.  
inner shoulder



## Refined Alternative Concept Design Dimensions (cont'd)

Northern-most  
deck contains  
10-ft. wide  
bikeway/sidewalk

Central area  
maintained  
between decks to  
accommodate  
potential future  
transit service





## Other Elements of Refined Alternative Concept Designs

- Navigational clearance unchanged at a minimum of 135 feet above MHW
- 50-ft. buffer on both sides of replacement bridge and approach spans, including 25-ft. right-of-way
- Permanent right-of-way fencing to be provided
- Permanent road located generally below proposed replacement bridge and approach spans for construction, maintenance and security



## Refined EIS Alternatives

- One design concept applicable to all alternatives
- ***Four alignments being considered***
- Two construction staging concepts, dependent on the particular alignment

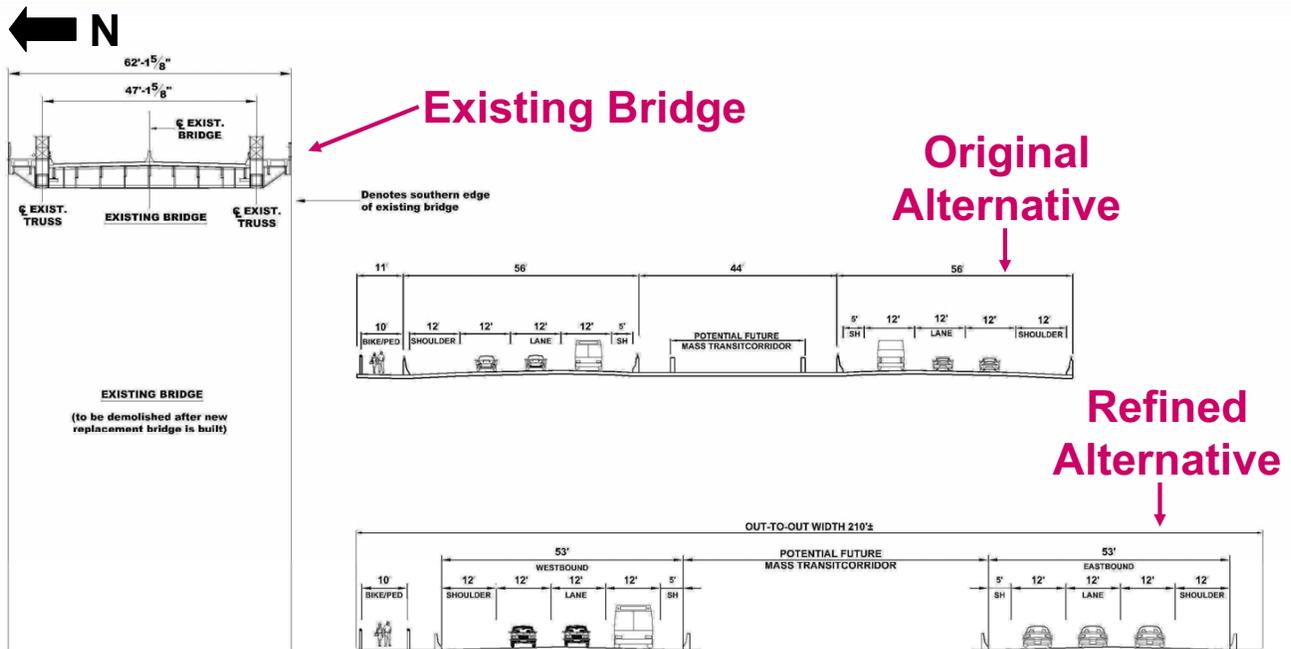


## Refined Alternatives Re-named Based on Alignment

- “New” Alignment South (formerly 6-Lane Replacement Bridge – South)
- “New” Alignment North (formerly 6-Lane Replacement Bridge – North)
- “Existing” Alignment South (formerly Twin Replacement Bridges – South)
- “Existing” Alignment North (formerly Twin Replacement Bridges – North)

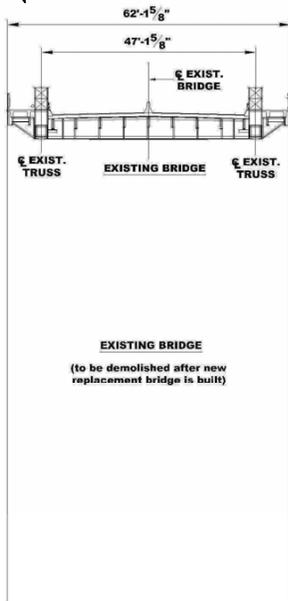


## Refined Alternative – New Alignment South at Main Span

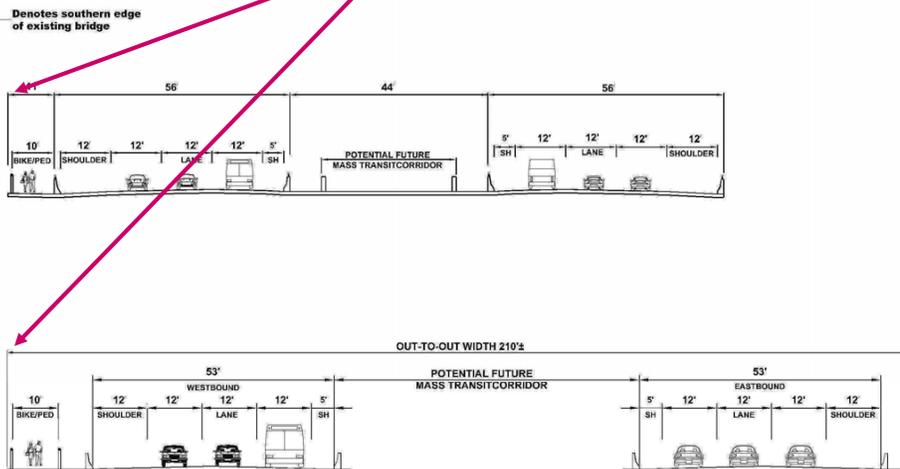




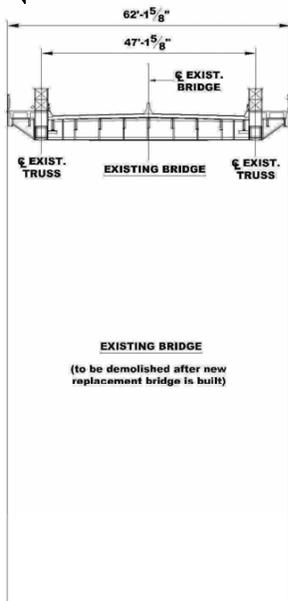
# New Alignment South at Main Span (cont'd)



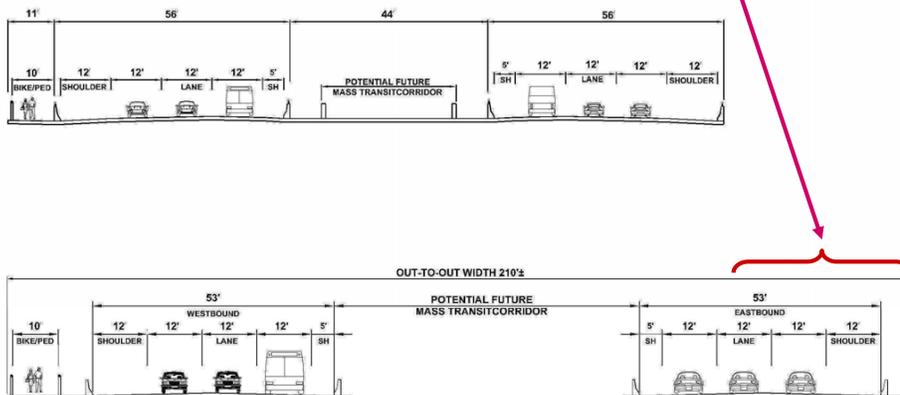
## Northern Offsets of Original and Refined Alternatives are Similar



# New Alignment South at Main Span (cont'd)



## Main span width increases ~40 ft. to south





## New Alignment South (cont'd)

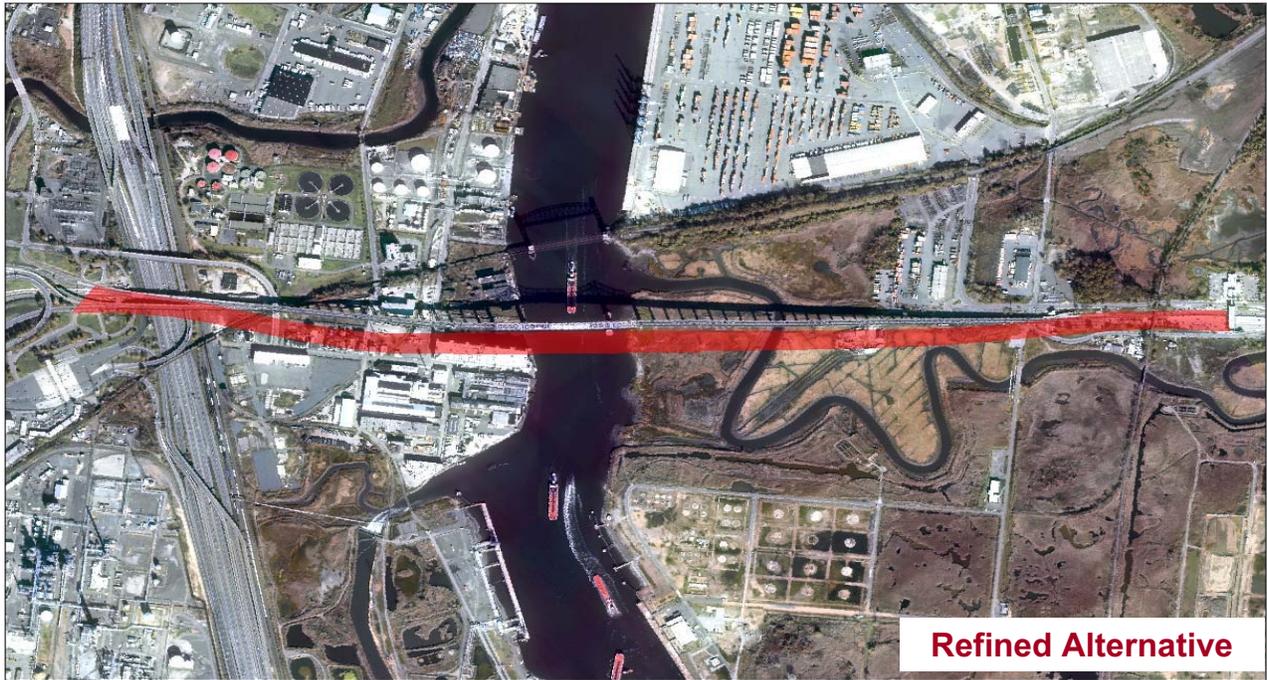


## New Alignment South (cont'd)

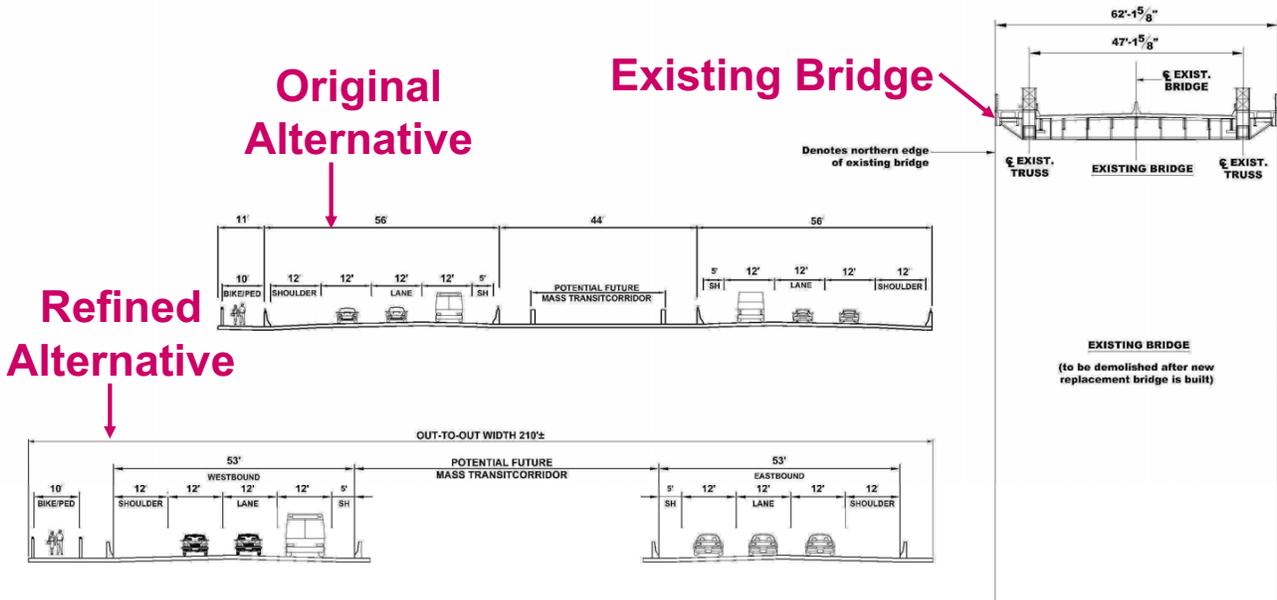




# New Alignment South (cont'd)



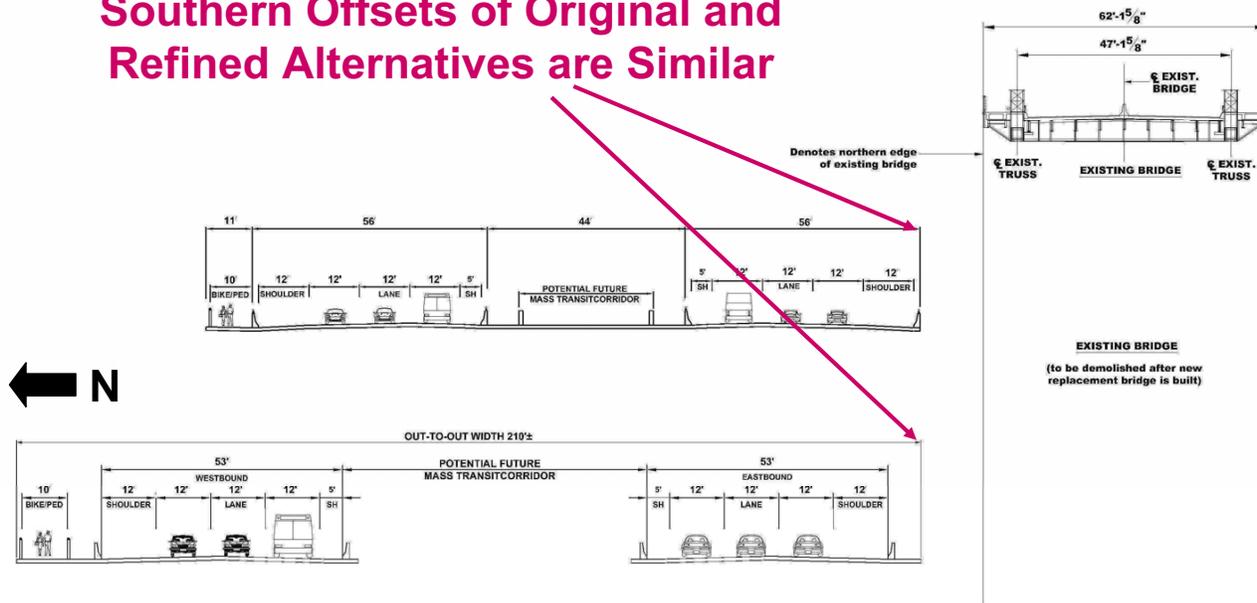
# Refined Alternative – New Alignment North at Main Span





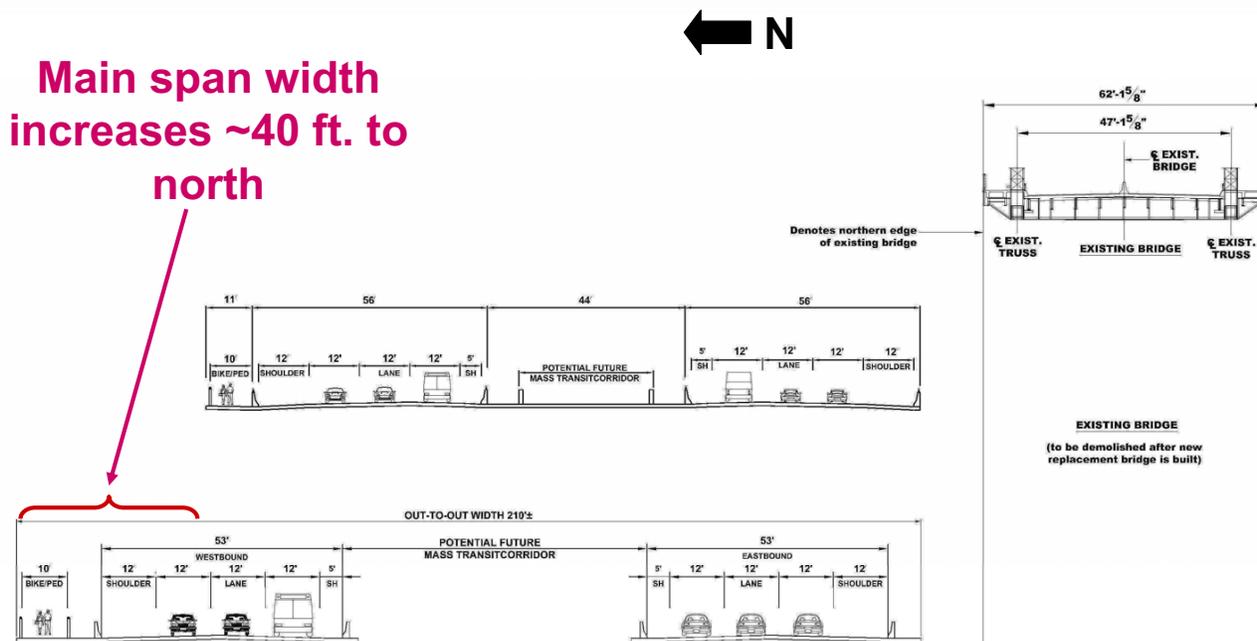
# New Alignment North at Main Span (cont'd)

**Southern Offsets of Original and Refined Alternatives are Similar**



# New Alignment North at Main Span (cont'd)

**Main span width increases ~40 ft. to north**





## New Alignment North (cont'd)



**Original Alternative**



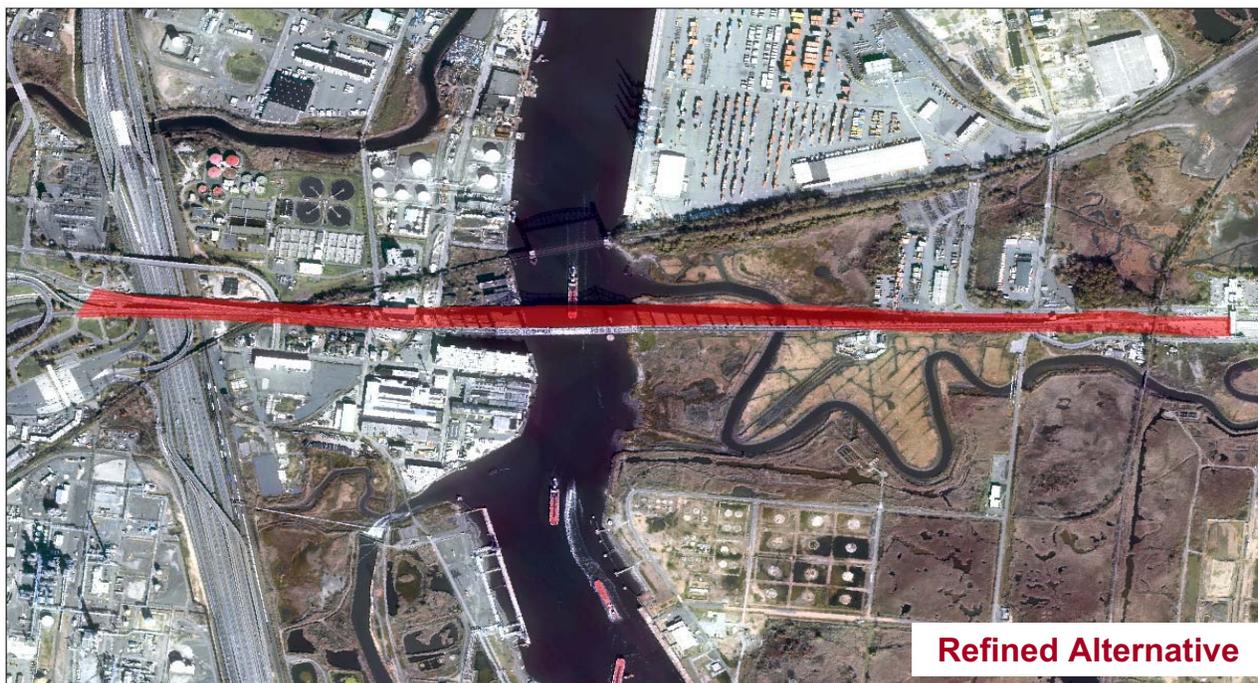
## New Alignment North (cont'd)



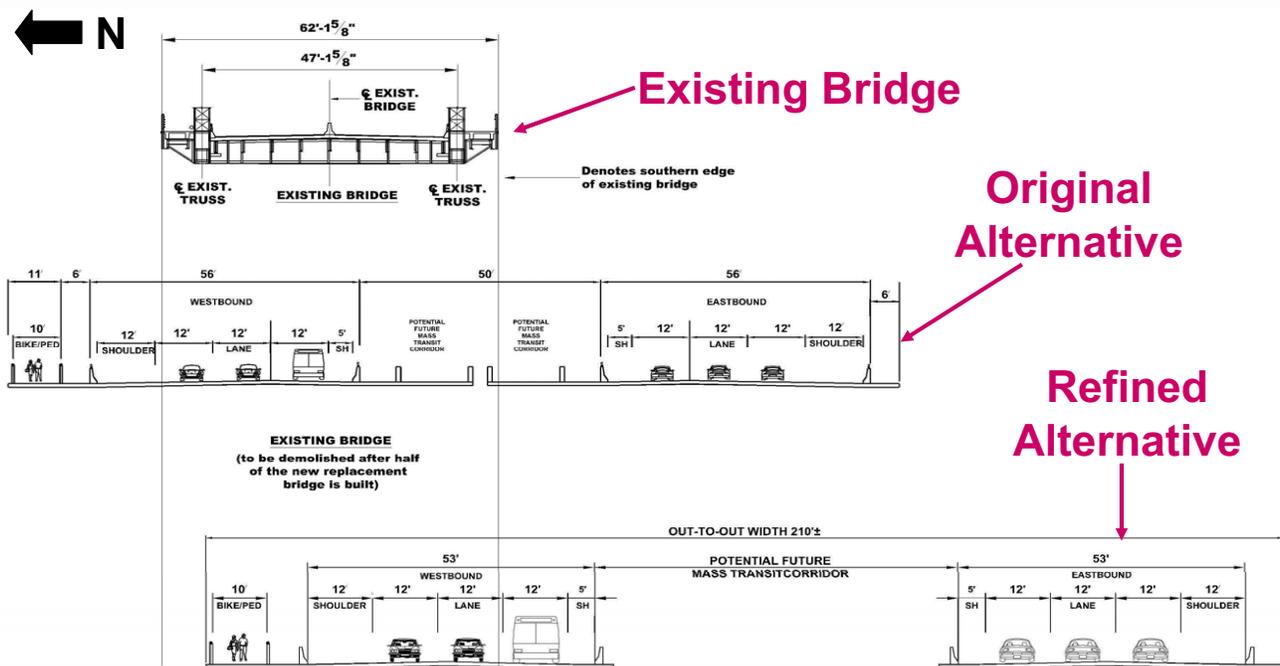
**Original Alternative  
vs.  
Refined Alternative**



# New Alignment North (cont'd)

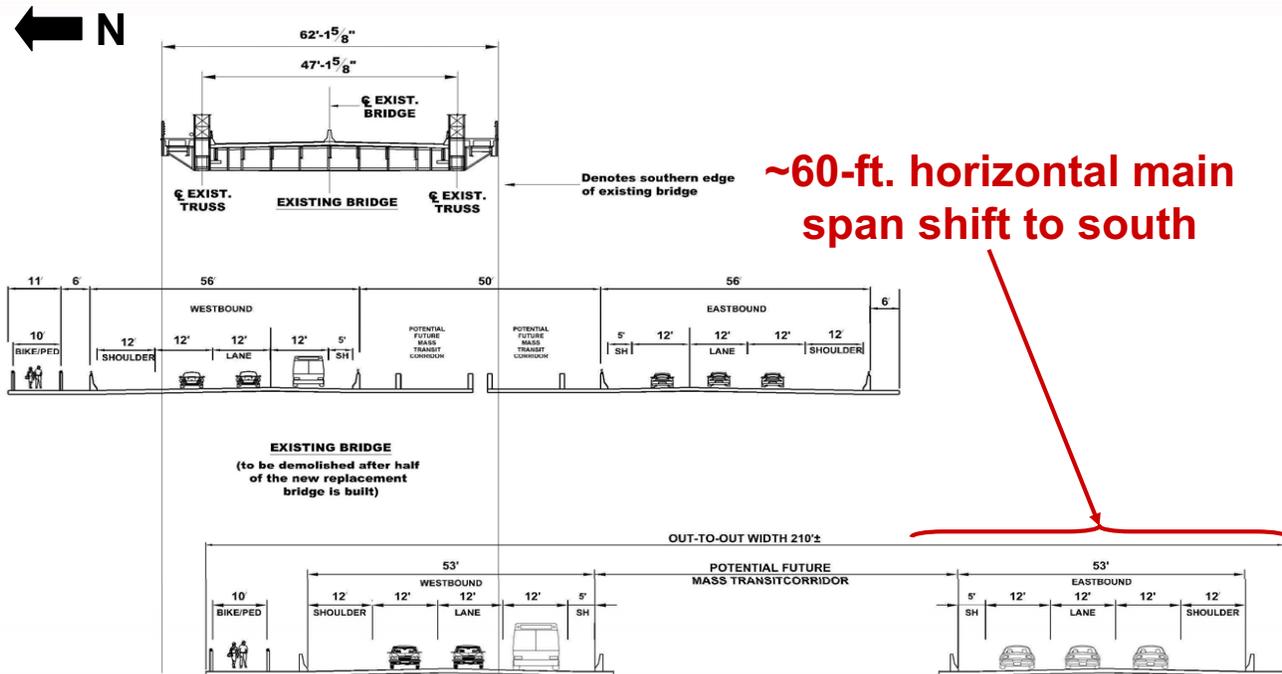


# Refined Alternative – Existing Alignment South at Main Span

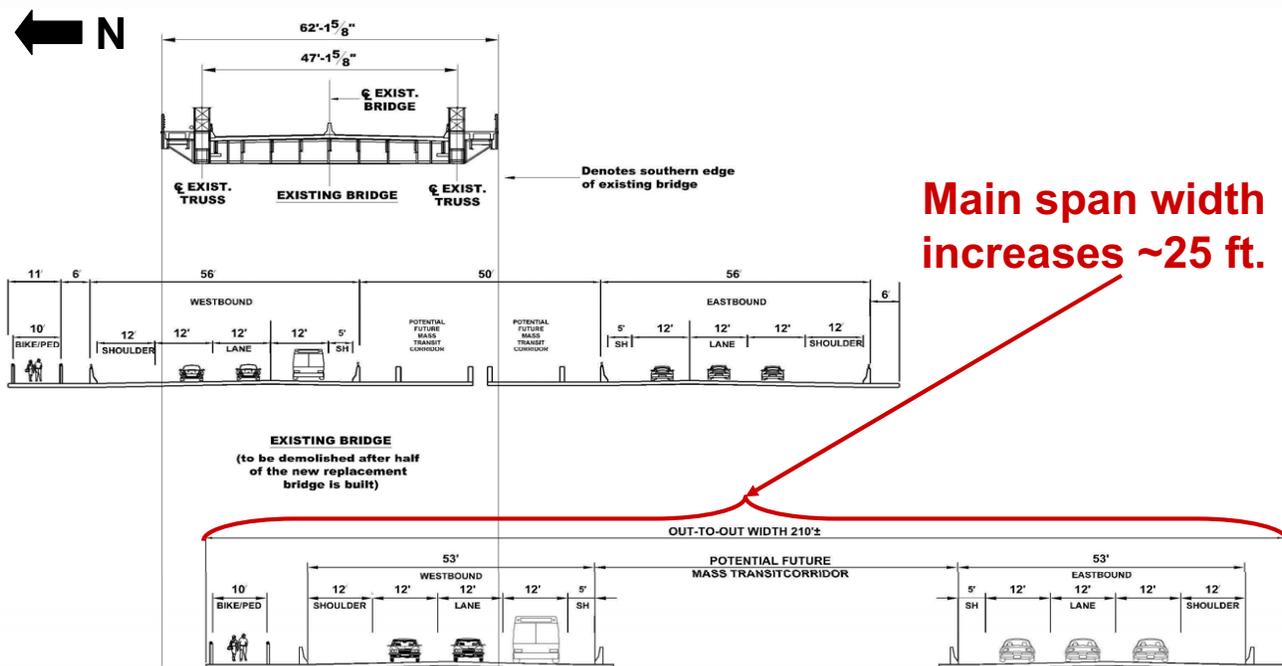




# Existing Alignment South at Main Span (cont'd)



# Existing Alignment South at Main Span (cont'd)





## Existing Alignment South (cont'd)



**Original Alternative**



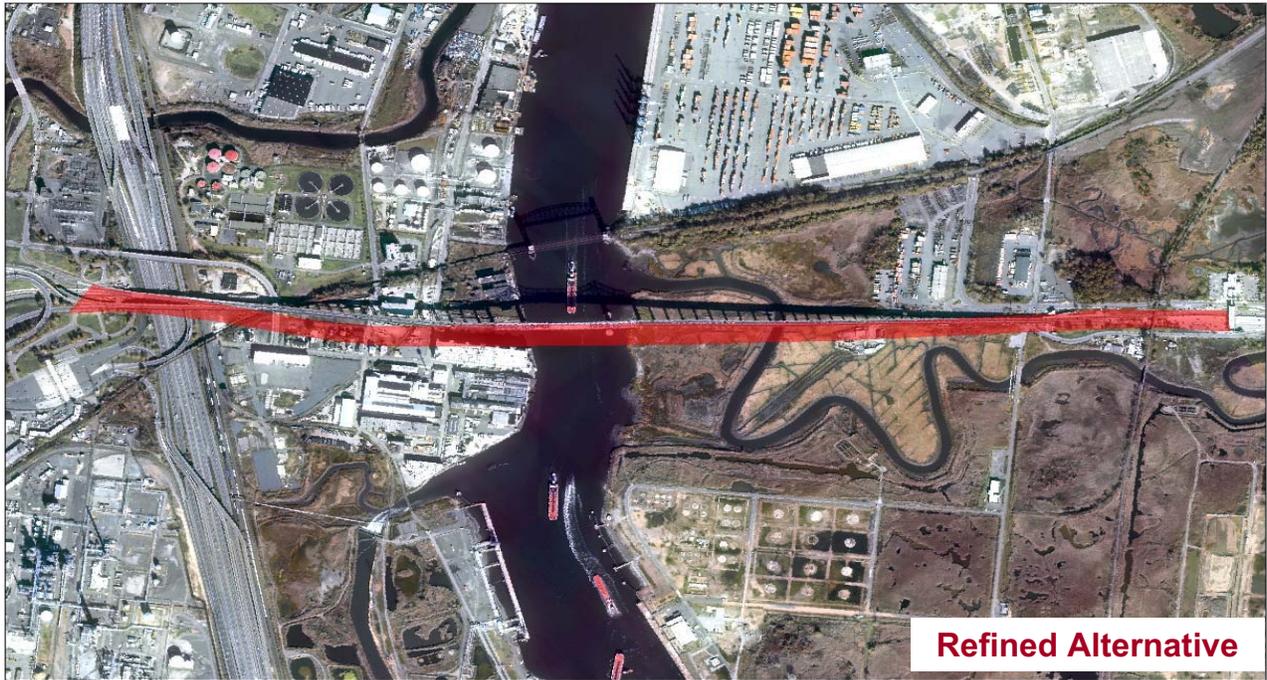
## Existing Alignment South (cont'd)



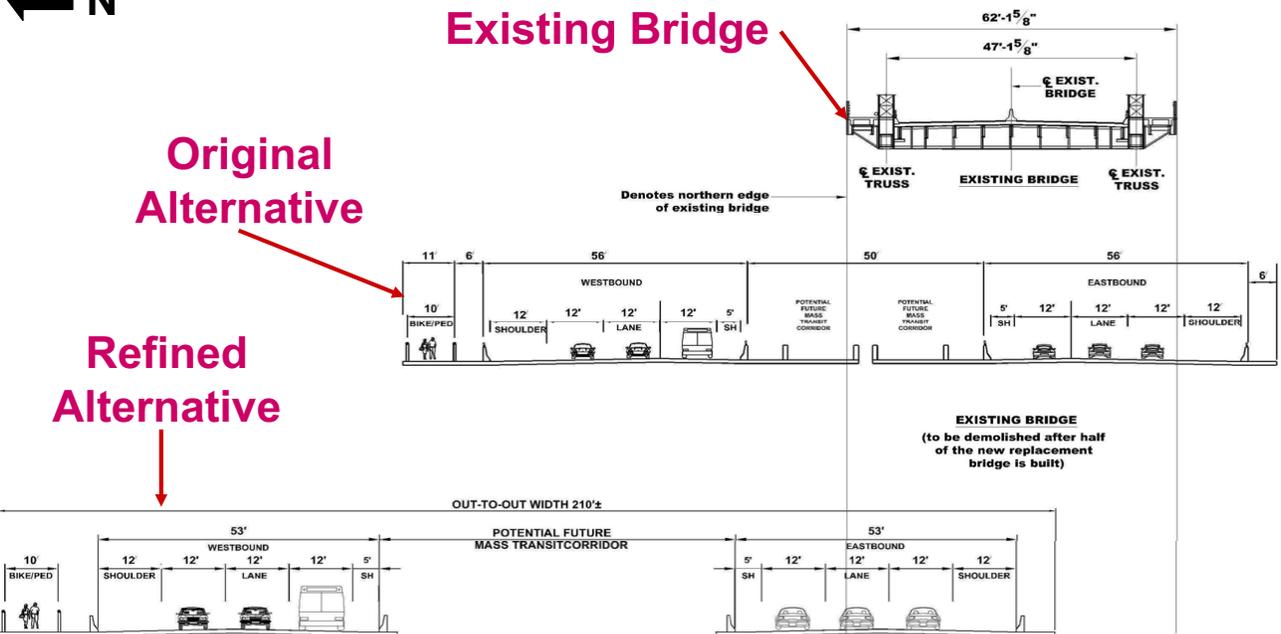
**Original Alternative  
vs.  
Refined Alternative**



# Existing Alignment South (cont'd)



# Refined Alternative – Existing Alignment North at Main Span

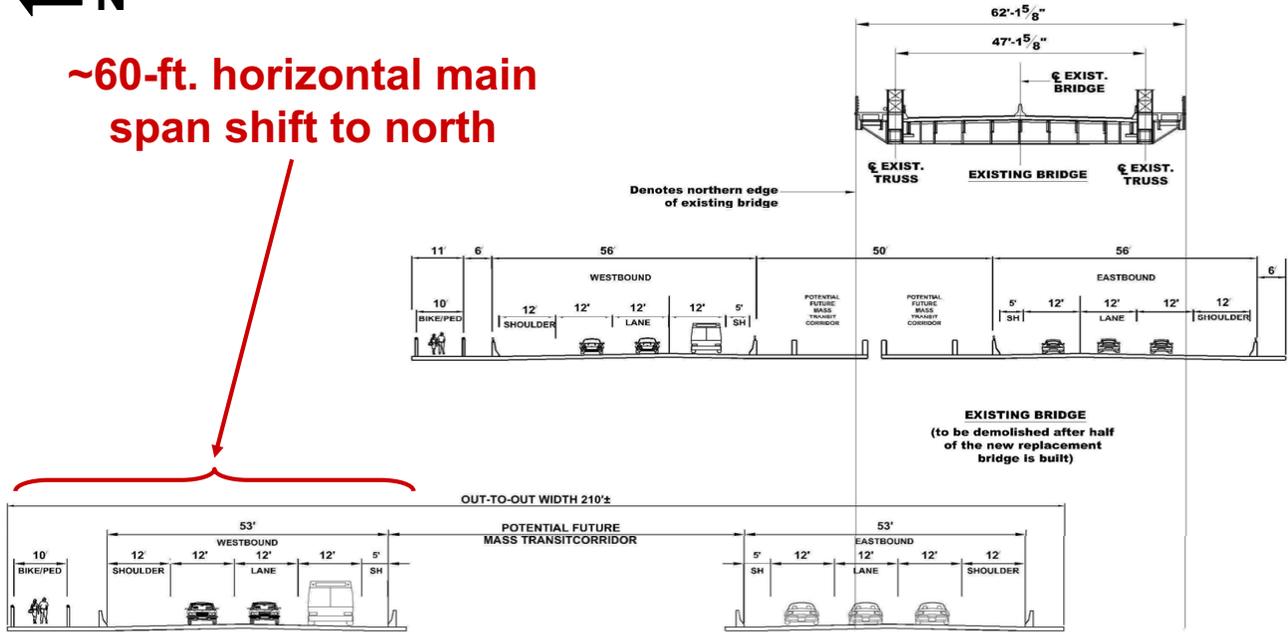




# Existing Alignment North at Main Span (cont'd)



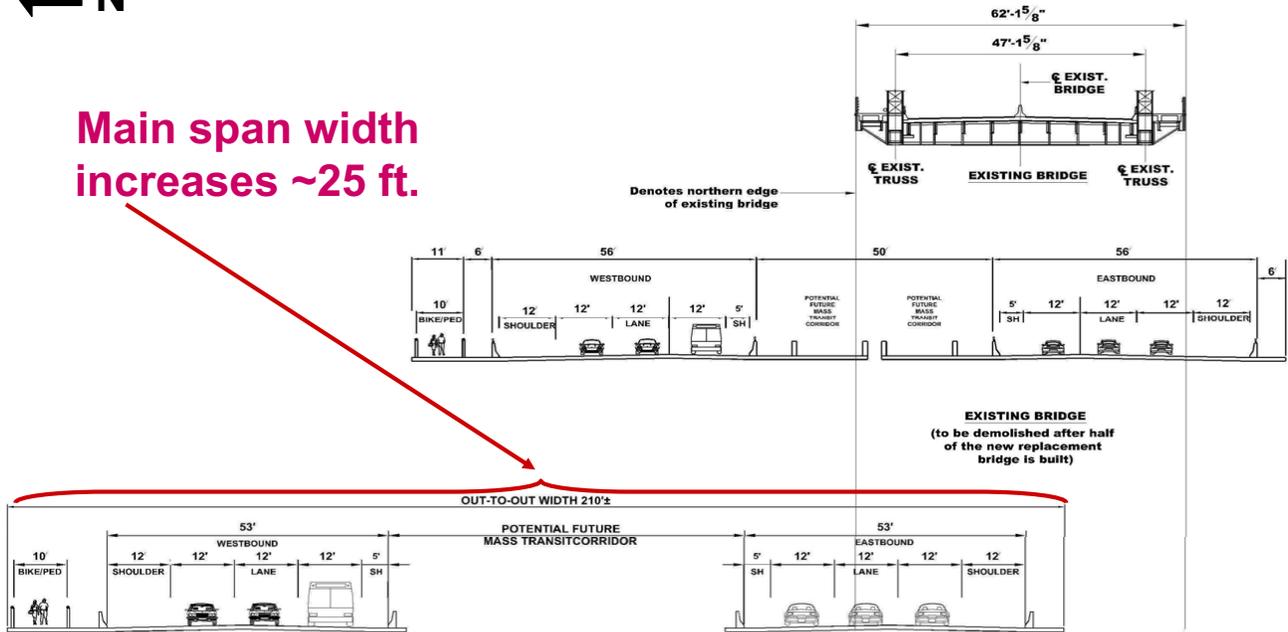
**~60-ft. horizontal main span shift to north**



# Existing Alignment North at Main Span (cont'd)



**Main span width increases ~25 ft.**

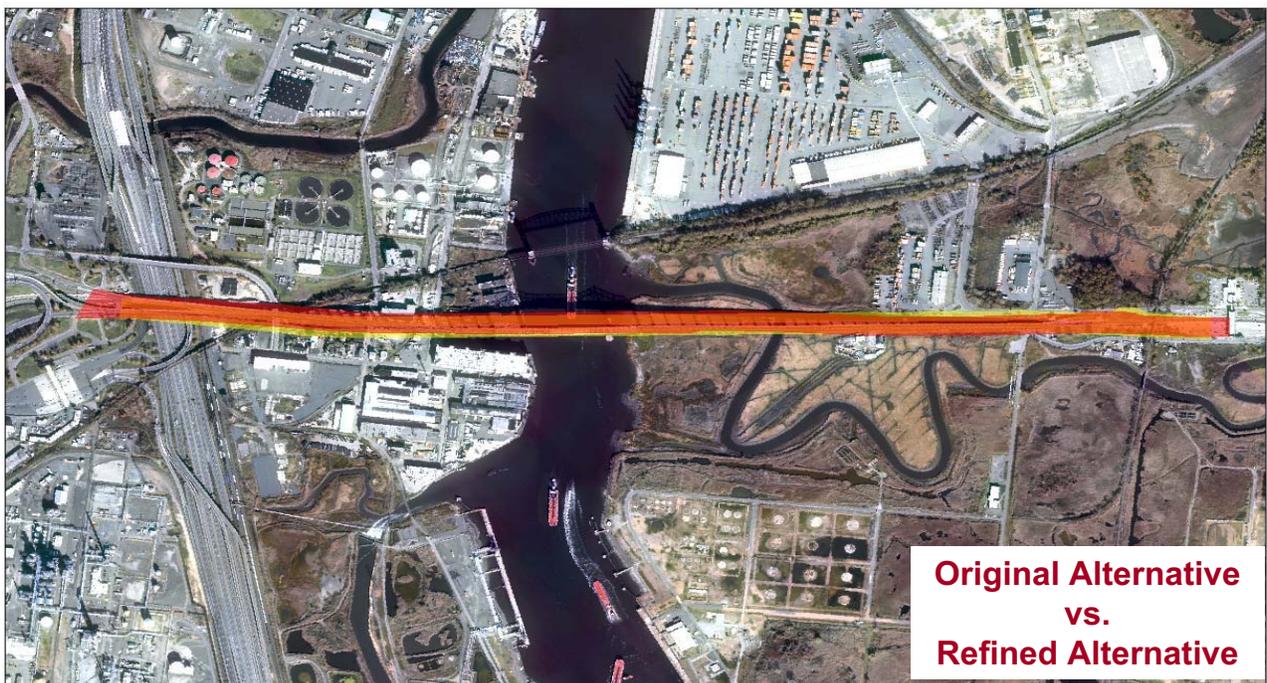




## Existing Alignment North (cont'd)

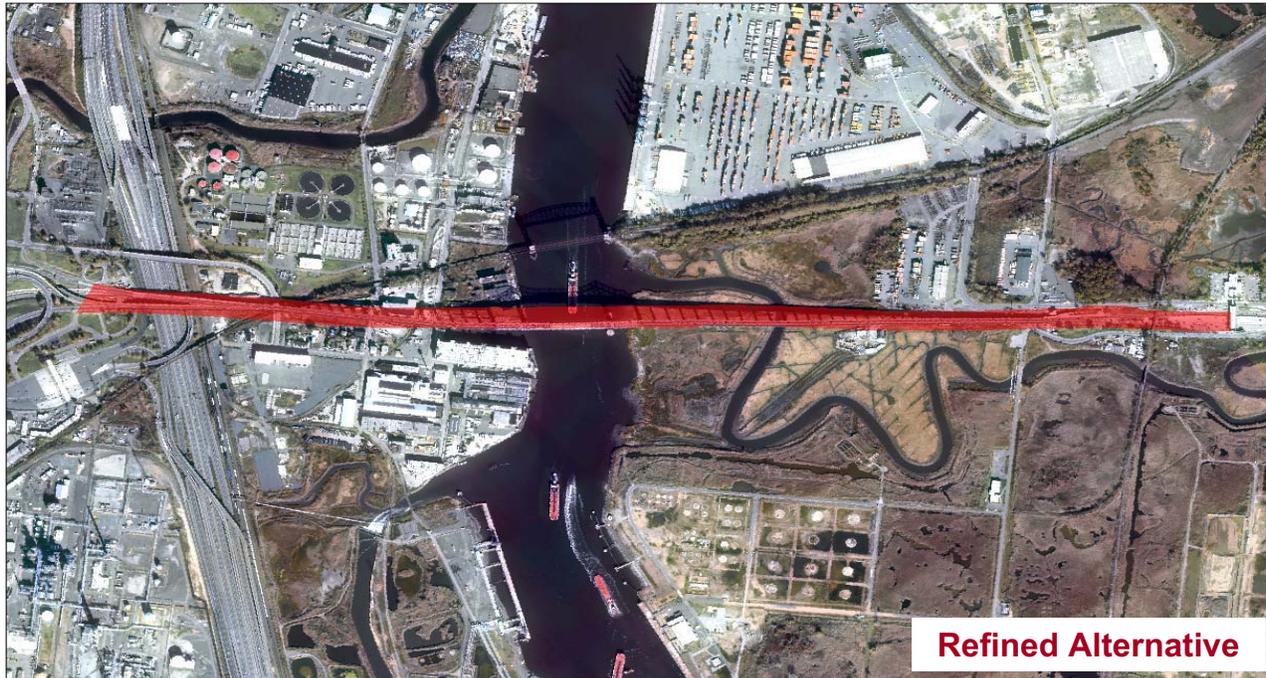


## Existing Alignment North (cont'd)





## Existing Alignment North (cont'd)



## Refined EIS Alternatives

- One design concept applicable to all alternatives
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- ***Two construction staging concepts, dependent on the particular alignment***



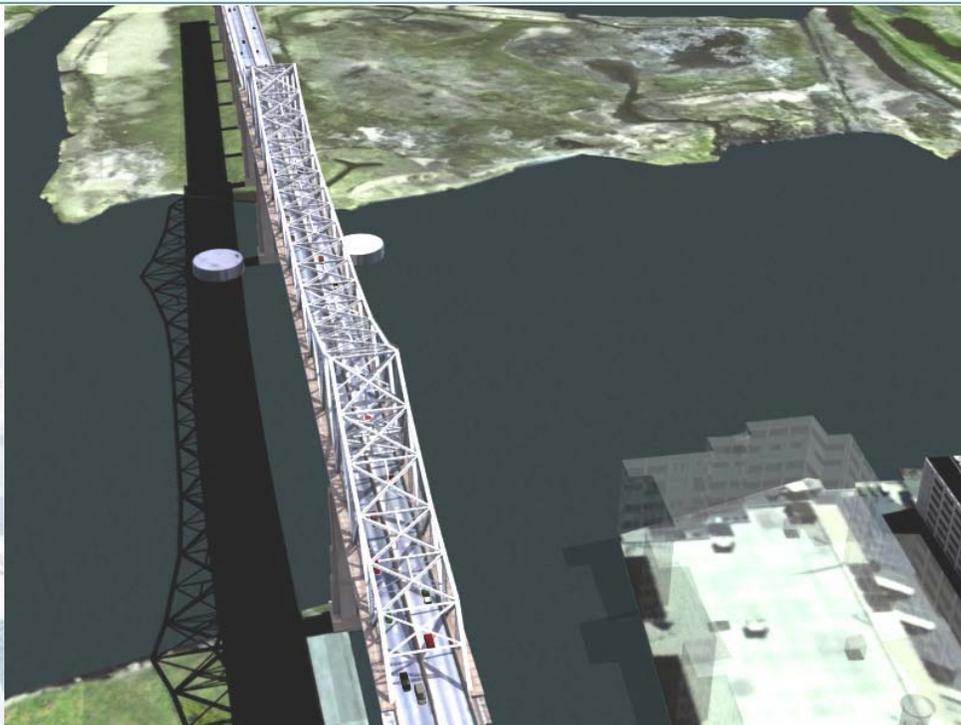


## Construction Staging Concepts

- Both “New Alignment” main spans are proposed to be constructed in their entirety, and then placed into operation before demolition of the existing Goethals Bridge
- Both “Existing Alignment” main spans are proposed to be constructed in stages using “half-width” methodology, including demolition of the existing Goethals Bridge after completion of the first half of the new bridge



## Half-Width Construction Staging: Pre-Construction Condition





## Half-Width Construction Staging: Stage 1, Build Pylons



## Half-Width Construction Staging: Stage 2, Add Tie-Downs and Build First Deck





## Half-Width Construction Staging: Stage 3, Demolish Existing Bridge



## Half-Width Construction Staging: Stage 4, Build Second Deck & Remove Tie-Downs





## Half-Width Construction Staging: Stage 5, Complete



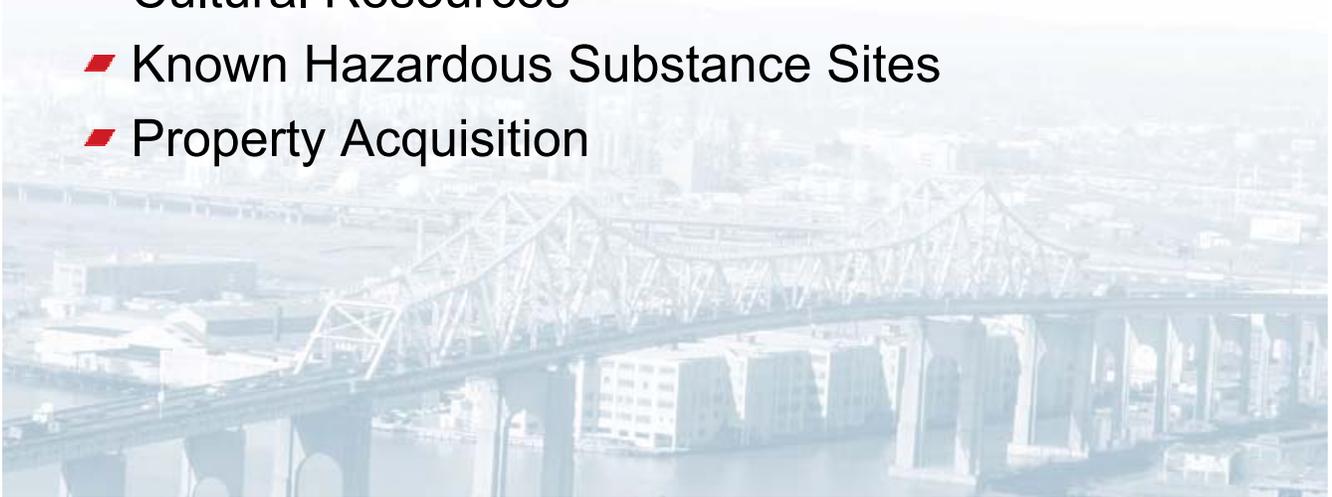
## Further Concept Refinements for Assessing Impacts in Current Screening Process

- Change from proposed temporary construction road to permanent construction/maintenance/security road on New York side
- Dimensions of permanent road on New York side further clarified
- Temporary trestle concept developed for New Jersey side
- 50-ft. buffer on both sides of replacement bridge and approach spans, including 25-ft. right-of-way
- Goethals Road North relocation concept developed for two northern alternatives
- Gulf Avenue relocation concept developed for two southern alternatives



## Environmental Screening Measures

- Wetland Resources
- Open-Water Habitat
- Cultural Resources
- Known Hazardous Substance Sites
- Property Acquisition



## Comparative Environmental Impacts

PERFORMANCE MEASURES	ALTERNATIVES				
	2034 No-Action	New Alignment		Existing Alignment	
		South	North	South	North
Wetland Acres	N/A	4.84 Acres	4.80 Acres	4.88 Acres	4.91 Acres
Wetland Buffer Acres		0.40 Acres	0.78 Acres	0.32 Acres	0.82 Acres
Construction Impact to Open-Water Habitat	N/A	Moderate (piers in Cory Warehouse boat slip)	Minor (no pier intrusion on Cory Warehouse boat slip)	Moderate	Moderate
Number and Extent of Known Areas of Potential Archeological Sensitivity within Alignment	N/A	1	2	1	1
Known Hazardous Substance Sites within Alignment (RT Baker – NYSDEC Inactive Hazardous Waste Site)	N/A	1 (Greatest Encroachment)	1 (Least Encroachment)	1 (Second Greatest Encroachment)	1 (Third Greatest Encroachment)



## Comparative Environmental Impacts (cont'd)

PERFORMANCE MEASURES	ALTERNATIVES				
	2034 No-Action	New Alignment		Existing Alignment	
		South	North	South	North
<i>Property Acquisition</i>					
<b>Business Impacts</b>					
<i>Property Encroachments</i>	N/A	2	3	3	3
<i>Business Displacements</i>	N/A	8	4	7	4
<i>Billboard Displacements</i>	N/A	1	1	1	2
<b>Total</b>	N/A	<b>11</b>	<b>8</b>	<b>11</b>	<b>9</b>
<b>Residential Impacts</b>					
<i>Property Displacements</i>	N/A	16	0	15	0
<i>Unit Displacements</i>	N/A	50	0	46	0



## Comparative Environmental Impacts (cont'd)

PERFORMANCE MEASURES	ALTERNATIVES				
	2034 No-Action	New Alignment		Existing Alignment	
		South	North	South	North
<i>Property Acquisition</i>					
<b>Vacant / Undeveloped Property Impacts</b>	N/A	9	9	12	11
<b>Utility Displacements / Relocations</b>	N/A	0	1	0	1
<b>Transportation Infrastructure Displacements / Relocations</b>	N/A	1 (Gulf Avenue)	3 (Goethals Road North, HHMT & possibly Gulf Avenue)	2 (Gulf Avenue & minor HHMT)	3 (Goethals Road North, HHMT & possibly Gulf Avenue)



## Comparative Construction Considerations

PERFORMANCE MEASURES	Alternatives				
	2034 No-Action	New Alignment		Existing Alignment	
		South	North	South	North
Duration of Construction Period (months)	N/A	56	56	70	70
Complexity of Traffic Maintenance and Protection (low, medium, high)	N/A	Medium	Medium	Medium	Medium



## Refined Alternatives Being Advanced for Detailed Study in DEIS

- Four original bridge-replacement alternatives were advanced for detailed study due to comparable impacts identified during screening
- Four refined bridge-replacement alternatives currently being advanced for detailed study due to comparable impacts identified during screening



## Status of EIS Studies

- No-Build and Build traffic modeling and analysis nearing completion
- Currently assessing potential traffic mitigation options
- Currently evaluating array of potential impacts and mitigation of refined alternatives
- Currently preparing the Preliminary Draft EIS and incorporating refined alternatives



## EIS Schedule

- Project Website Update and Availability of Next Newsletter – October 2007
- Final ETF/TAC/Stakeholder/Public Meetings
  - Late 2007 / Early 2008
  - Presentation/Discussion of Impacts and Proposed Mitigation of DEIS Alternatives
- Draft EIS/Public Hearings – Spring 2008



[www.goethalseis.com](http://www.goethalseis.com)

**Thank you**

