Presentation Overview

• Project Background & Location
• Existing Roadway Features
• Existing Structural Features
• Project Need
• Rehabilitation Alternatives
• Staged Construction

Project Background

• Owner: NJDOT
• Designer: Gannett Fleming, Inc.
• Limited Scope Project
• Address Deficient Bridge Decks
New Jersey Department of Transportation
Routes 1 & 9 and 46 over Jones Road

- Peak Hour Traffic Volume
  - NB: 1,991 veh/hr
  - SB: 2,269 veh/hr
- Weekend Daily Volume
  - NB: 32k vehicles
  - SB: 30k vehicles
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Routes 1 & 9 and 46 over Jones Road

**Bridge Cross Section**

- Two 12-ft wide Lanes
- 1-ft wide Inside Shoulder
- 4-ft wide Outside Shoulder
- 5’-5” wide Sidewalk
- 9” Thick Concrete Railings
- 2-ft wide Median Barrier

- 72’-4” Total Width
- 19 Concrete Encased Steel Beams
- Beams Raised Under Sidewalks
- Unusual Beam Framing Layout
- Aerial Utilities (Above and Below)
Bridge Details

- Constructed in 1930
- Single Span
- Simply Supported
- 64-ft Total Length
- 30° Skew Angle
- Gravity Abutments
- 20-ft wide Roadway
- 14’-3” Vert. Clearance
Bridge Details

- Unusual Beam Framing
Bridge Details

- Unusual Beam Framing
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Project Need
• Structurally Deficient
• Functionally Obsolete
• Super/Sub: Satisfactory
• Deck: Poor
• Substandard Vert. Clr. (14’-3’’)

Primary Objectives
• Eliminate SD Classification
• Replace the Deck “in kind”

Secondary Objectives
• Improve Inventory Ratings
• Gain 3” Vertical Clearance (14’-6’’)

Minimize Adverse Traffic Impacts
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Traffic Impact Criteria  
• Maintain 4 Lanes (Weekday Peak Hours)  
• Maintain 2 Lanes (Weekday Off-Peak)  
• Weekend Detours  
  ✓ High Intensity Construction Cycle  
  ✓ 9:00 PM Friday to 5:00 AM Monday  
  ✓ 56 Hour Max. Duration  
  ✓ HICCs Limited to Two Weekends  
• Maintain Ped Access Below  
  ✓ Waived for Weekend HICCs  

Replacement Concepts Studied  
• Replace Deck (Half-Width)  
• Replace Superstructure (Half-Width)  
• HICCs During Summer Months
Deck Replacement Alternative

• Complicated by Framing Configuration
Superstructure Replacement Alternative

- Requires Temporary Supports
Superstructure Replacement Alternative

- Preference of NJDOT and Public Officials

TYPICAL INTERIOR PREFABRICATED UNIT
Stage 1 – Remove Median Barrier
Stage 1 – Prepare Substructure

• Install New Concrete Pedestals
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Stage 1 – Install Temporary Supports
• Partial Encasement Removal
Stage 2 - Replace SB Structure (1st Weekend HICC)
Stage 2 – Replace SB Structure (1st Weekend HICC)
Stage 2 – Replace SB Structure (1st Weekend HICC)
Stage 2 – Replace SB Structure (1st Weekend HICC)
Stage 2a – Weekday Stage after SB Construction
Barrier Relocation Prior to Stage 3
Stage 3 - Replace NB Structure (2nd Weekend HICC)

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[Diagram showing stages of construction with labels for various barriers and the note 'RAMP CLOSED']
Stage 3 - Replace NB Structure (2nd Weekend HICC)
Stage 3 - Replace NB Structure (2\textsuperscript{nd} Weekend HICC)
Stage 4a – Construct Concrete Median Barrier
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Stage 4b– Construct Sidewalk and Parapet
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Two-Weekend Superstructure Replacement
Routes 1 & 9 and 46 over Jones Road

Borough of Fort Lee, New Jersey
Two-Weekend Superstructure Replacement
Routes 1 & 9 and 46 over Jones Road
Borough of Fort Lee, New Jersey

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Questions?