Delair Bridge Span Replacement: Upgrading for the Future of Commerce
Project Overview

• **Project Method:** Accelerated Bridge Construction

• **Obstacles:**
  – Physical and Environmental Constraints
  – Federal Approval Timelines vs. Procurement Limitations
  – Operational and Shared-Use Logistics

• **Results:**
  – Project Completed 11 Months Ahead of Schedule
  – $14M in Total Budget Savings
  – Reallocation of Federal Cost-Share to Additional Infrastructure Projects
Project Purpose and Need

- Only freight rail access to Southern NJ
- Approach spans not rated for 286K
- Increased safety for employees
Operational Considerations

• Shared Use of Bridge
  – Freight customer needs
  – NJ TRANSIT passenger service
  – Electric transmission service

• 72-Hour Outage Limit

• Winter Black-Out Period
Funding Mechanism, Approvals, and Issues

• USDOT TIGER Grant: 50% Cost Share
• Notice to Proceed with Construction Contingent Upon:
  – NEPA
  – Section 106
  – Other state/federal permits and coordination
• Buy America Requirement for Steel
  – Seasonal order placement
Expediting Environmental Approvals

• Facilitate Procurement to Keep Schedule
• Plan of Action:
  1. Optimize avoidance alternatives
  2. Team meetings in the field
  3. Negotiate concurrent review
1. Optimize Avoidance Alternatives

- PA Span replacement over water
- Eliminate USACE permit processing
- Use land-based approach
- Means and methods described in bid package
2. Team Meeting in the Field

- Resolve SHPO Issues Simultaneously
- Describe Span Replacement Methods
- Identify off-site impacts
3. Negotiate Concurrent Review

• Atypical, complicated NEPA
• No environmental impacts except historic architecture
  – Section 106 critical path
  – No bearing on other environmental categories
• FRA agreed to review CED while SHPO prepared Section 106
## NEPA Schedule Comparison

### Typical Sequential Processing

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Procurement

• Environmental compliance informed bid package
• Advertised widely to meet DBA goals
• Negotiated “best value” assessment
  – Provided methodology
  – Kept evaluation records
  – Safety record
Engineering and Design Challenges

• 114-year-old As-Builts
• Modular Construction Required Precision
• Pre-outage Coordination
  – PECO, Amtrak, NJ TRANSIT, freight customers
  – 8 weeks between outages
  – Shortened to 4 weeks
Span Replacement Process

• Between Outages Replace Rivets with Bolts
• Within 72 Hours
  – Cut out old span
  – Replace with new span
  – Replace rail
Typical Span Replacement
Span 35 Replacement

• Catenary Pole Mid-Span
• Method
  – Use Two Cranes and Flatbed Rail Car
  – Occupy NJ TRANSIT Tracks
Span 35 Replacement
Span 52 Replacement

- Span closest to Delaware River
- Critical C&S Platform Attached to Existing Span
- Stay upland of USACE jurisdictional boundary
- Method:
  - One 500-ton Crane, Fully Extended Boom
  - Construct Span in the Field
  - Reduce Total Spans Replaced to Six
Span 52 Replacement
Span 52 Replacement
Project Conclusion

- Projected Completion Date: December 2015
- Substantially Complete: October 2014
- Total Budget: $11.8M
- Federal Funds Reallocated: $5.6M

Unallocated funds applied to unfunded grant projects.