Gilmerton Bridge Replacement Project

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AASHTO Subcommittee on Bridges and Structures

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Introductions

- Owner: City of Chesapeake/VDOT
- Lift Span EOR: Modjeski and Masters
- Contractor: PCL
- CEI: Parsons Brinckerhoff
Project Location

- Located on Rte. 13 Military Highway west of Bainbridge Blvd
- Crosses the Southern Branch of the Elizabeth River
Project Site

Rte 13
Military Hwy

I-464

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Gilmerton Bridge Stats

- **Dimensions:**
  - New bridge length: 1,908 ft
  - Lift Span length: 250 ft
  - Towers: 207 ft tall
  - Vert. Clear: Open 135 ft, Closed 35 ft clearance
  - Hor. Clear: 150 ft Min
  - Six Lane Cross Section. 85’-4” out-to-out of Deck
  - Trusses 89 ft CL-to-CL
Gilmerton Bridge Stats

- Weights:
  - 7.1 Million Pounds Structural Steel
  - Lift Span Weight: 4.86 Million Pounds
  - Reaction at Tower Base: 4.41 Million Pounds
  - Counterweight pockets sized to accommodate FWS
Gilmerton Bridge Stats

• Electrical & Mechanical:
  – Relay logic used to make more readily serviceable by VDOT maintenance
  – Drive Motor: 200hp Flux Vector Drive
  – 2 ¼ in Dia. Ropes
  – Sheaves: 15 ft Dia., 12 Ropes each, 4 per Tower
  – Transverse centering through guide rollers
Machinery Fabrication

Sheave fabrication before stress relieving
Machinery Fabrication

Cutting teeth on Ring Gear

Brakes and Guide Wheels
Notable Features

- 12 ft Dia Drilled Shaft Oscillator
- #18 Longitudinal Bars
- #8 Hoop Bars
Notable Features

- Tower Jacking for possible foundation settlement

- Lift span sits on a shelf on tower column.
Notable Features

- Light Wt. RC Deck
- Approach Spans sit on Tower Floorbeam
Notable Features

• Transverse Floorbeams Fixed End Connection to Tower Legs
• Anchor Bolts Post-Tensioned for Fixed Connection to Drilled Shaft
Notable Features

• Float-in of Lift Span
  – Removable sections of guides on tower
  – Guide wheels between tower and lift span
Project Challenges

• Traffic Limitations:
  – Active project site: Construction of replacement structure while existing bridge is open to vehicular and marine traffic
  – USCG: Channel may not be closed for an extended duration without 60 day notice to mariners
  – Consistent railway coordination with Norfolk Southern. 20’-3” Separation
Project Challenges

- Picking casing for 12ft drilled shaft from under the railroad bridge
Project Challenges

Barge Approaching

Barge Positioned to Pass
Questions

- Thank you