VIRGINIA’S BRIDGE PROGRAM UNDER THE INFRASTRUCTURE INVESTMENT AND JOBS ACT

Kendal R. Walus, PE  December 2021
Infrastructure Investment and Jobs Act (IIJA)

- Signed into Law on November 15, 2021
  - Federal rulemaking (formal requirements) expected in Spring 2022
  - Coordinating with FHWA now to initiate work as soon as possible
- ~$107M/Year for 5 Years for Virginia’s Bridges (~$535M Total)
  - VDOT has been working on plan development since May
  - Law allows preservation activities for existing Fair condition bridges
  - Set-aside required for bridges on non-federal aid routes (off-system)
- Year 1 Funds Must Be Obligated by September 30, 2022
  - Short time frame requires immediate action
  - Will present first year projects for Board approval in January
IIJA Bridge Funding: Virginia’s Proposed Plan

- Focus to restore condition and extend service life
- Emphasizes bridges on Interstates and High Volume Primaries
- Must still meet the bill’s “off-system” funding requirements
- Goal: 75% to Preserving Fair Bridges & 25% to Poor Bridges
  - Aligns with findings of the 2019 Comprehensive Review
  - Preservation focus for VDOT bridges
  - Funding for localities to address poor bridges
  - Invests funds where needed most – fair and poor bridges
  - Provides the best long term return on investment (life cycle value)
# 5 Year Bridge Plan: Distribution of Funds by Year

<table>
<thead>
<tr>
<th>District</th>
<th>Year of Plan</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>Total</th>
<th>% of Total</th>
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<tbody>
<tr>
<td>1-Bristol</td>
<td></td>
<td>$9</td>
<td>$7</td>
<td>$9</td>
<td>$7</td>
<td>$8</td>
<td>$40</td>
<td>10%</td>
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<tr>
<td>2-Salem</td>
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<td>$0*</td>
<td>$0</td>
<td>$21</td>
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<td>9%</td>
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<tr>
<td>3-Lynchburg</td>
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<td>$7</td>
<td>$1</td>
<td>$2</td>
<td>$4</td>
<td>$5</td>
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<tr>
<td>4-Richmond</td>
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<td>$42</td>
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<td>$0</td>
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<td>$4</td>
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<td>5-Hampton Roads</td>
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<td>$14</td>
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<td>$16</td>
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<tr>
<td>6-Fredericksburg</td>
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<td>$1*</td>
<td>$14</td>
<td>$6</td>
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<td>$0</td>
<td>$21</td>
<td>5%</td>
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<td>7-Culpeper</td>
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<td>$26</td>
<td>$10</td>
<td>$13</td>
<td>$8</td>
<td>$2</td>
<td>$59</td>
<td>15%</td>
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<td>8-Staunton</td>
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<td>$13</td>
<td>$14</td>
<td>$8</td>
<td>$10</td>
<td>$15</td>
<td>$60</td>
<td>15%</td>
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<tr>
<td>9-Northern Virginia</td>
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<td>$13</td>
<td>$14</td>
<td>$8</td>
<td>$10</td>
<td>$15</td>
<td>$60</td>
<td>15%</td>
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<tr>
<td>VDOT Total</td>
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<td>$75</td>
<td>$74</td>
<td>$73</td>
<td>$74</td>
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<table>
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<tr>
<th>Locality Bridge Funding</th>
<th>Total IIJA Bridge Funding</th>
<th>Statewide</th>
<th>$0**</th>
<th>$33</th>
<th>$33</th>
<th>$33</th>
<th>$33</th>
<th>$132</th>
<th>25%</th>
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<tbody>
<tr>
<td>VDOT Total</td>
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<td>$107</td>
<td>$108</td>
<td>$107</td>
<td>$106</td>
<td>$107</td>
<td>$535</td>
<td>100%</td>
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* Fredericksburg, Culpeper, and Salem Districts - 1st year focused on preliminary engineering

** Localities – 1st year focused on preliminary engineering
Types of Work: Deck Overlays

Decks: Improves Bridge Condition Rating and Extends Service Life

- Rigid Overlays (35 Years Additional Service Life)
- Epoxy Overlays (15 Years Additional Service Life)
- Deck Replacement (50 Years Additional Service Life)
Types of Work: Bridge Resurfacing and Deck Rehabilitation

Hydrodemolition uses Very High Pressure Water to remove damaged concrete

Placement of New Deck Surface
Types of Work: Elimination of Leaking Deck Joints

Initial Condition

Leaking Joint Allows Salt & Water Under Bridge

Final Condition

Protects Girders and Bridge Supports from Chlorides and Water
35 to 50 years additional service life for protected elements
Improves Condition Rating and Extends Service Life

- 35 years additional service life when joints are properly addressed
  - Removes chloride-contaminated concrete and replaces with high performance concrete
Types of Work: Repairing Corroded Beam Ends

- 50 Years of additional service life when joints are properly addressed
- Rehab is approximately 10% of replacement cost
- Must be performed before too much corrosion has occurred
Types of Work: Rehabilitating Culverts

Culverts
May receive flow liner or full liner depending on condition (20 years additional service life)
Much More Than an Aesthetic Treatment: Extends Service Life

- Serves as the primary protective element against corrosion
- Corrosion of steel girders is the leading cause of bridge replacement
- Paint can extend service lives of steel elements by 15 to 20 years
Virginia’s IIJA Bridge Plan: Year 1

VDOT Planned Activities

• Deck Overlays
• Resurfacing and Deck Rehabilitation
• Elimination of Leaking Deck Joints
• Pier and Column Rehabilitation
• Repairing Corroded Beam Ends
• Rehabilitating Culverts
• Painting
• Preliminary Engineering

Locality Planned Activities

• Preliminary engineering and planning for Years 2 – 5
• Coordinate with districts & jurisdictions to finalize estimates
Virginia’s IIJA Bridge Plan: Years 2 - 5

**VDOT Planned Activities**
- ~$403M for bridges in fair condition (75% of total program)
- Continue emphasis on preservation of bridges in fair condition
- Bridge and major component replacements

**Locality Planned Activities**
- ~$132M for bridges in poor condition (25% of total program)
- Supplements State of Good Repair funds to address poor bridges
- Will reduce the number of locality-owned poor condition bridges
Preliminary Concept for Work Type by Year

Work Activities and Approximate Percentages by Plan Year

- Painting
- Deck & Girders
- Substructure & Supports
- Deck and Approaches
- Girders/Beams
- Multiple Components
- Culvert
- Replace Component or Structure
Summary

Planning for Approximately $535M in IIJA Bridge Funding

• ~75% for VDOT-Owned Bridges
  • Emphasis on preservation on interstates and high volume primaries
  • Off-system requirement for Non-Federal Aid Routes

• ~25% for Locality-Owned Bridges
  • Focus on poor bridges
  • Will be finalized when estimates are complete

• Service lives of over 500 bridges will be improved
• Equates to approximately 20% of the interstate inventory