2018 Concrete Conference

Virginia’s State of Good Repair Program for Bridges

Adam Matteo
Assistant State Structure and Bridge Engineer

Structure and Bridge Division
March 1, 2018
Virginia’s State of Good Repair (SGR) Program

House Bill 1887 Requires 45% of Virginia’s Capital Budget be used to Repair Deficient Bridges and Pavements (State of Good Repair)

- Total Capital Program Bridge Funding Averages ≈ $200M per year
- Funds are distributed between districts and pavements and bridges by percentage of total need
- Projects are prioritized by a selection formula

Projects must meet the following criteria:
- Bridge must be structurally deficient (SD)
- National Bridge Inventory only
- Work must take bridge out of SD status
- Must initiate the preliminary engineering or the construction phase within 24 months of award of funding or become subject to de-allocation
<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>Formula Funds</th>
<th>SGR Funds</th>
<th>Total Funds</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006-2011</td>
<td>Dedicated Bridge Fund</td>
<td>Average $111</td>
<td></td>
</tr>
<tr>
<td>2012</td>
<td>$145</td>
<td></td>
<td>$145</td>
</tr>
<tr>
<td>2013</td>
<td>$156</td>
<td></td>
<td>$156</td>
</tr>
<tr>
<td>2014</td>
<td>$84</td>
<td></td>
<td>$84</td>
</tr>
<tr>
<td>2015</td>
<td>$106</td>
<td></td>
<td>$106</td>
</tr>
<tr>
<td>2016</td>
<td>$127</td>
<td></td>
<td>$127</td>
</tr>
<tr>
<td>2017</td>
<td>$119</td>
<td>$99</td>
<td>$218</td>
</tr>
<tr>
<td>2018</td>
<td>$154</td>
<td>$48</td>
<td>$202</td>
</tr>
<tr>
<td>2019</td>
<td>$170</td>
<td>$31</td>
<td>$201</td>
</tr>
<tr>
<td>2020</td>
<td>$177</td>
<td>$31</td>
<td>$208</td>
</tr>
<tr>
<td>2021</td>
<td></td>
<td>$195</td>
<td>$195</td>
</tr>
<tr>
<td>2022</td>
<td></td>
<td>$187</td>
<td>$187</td>
</tr>
<tr>
<td>2023</td>
<td></td>
<td>$191</td>
<td>$191</td>
</tr>
</tbody>
</table>
Progress on SD, NBI Bridges Since 2014

Number of SD NBI Bridges

1,046 SD Bridges
October, 2014
Count of Structurally Deficient NBI Bridges

- October 2014: 1,046
- February 2018: 628
Progress on SD, NBI Bridges Since 2014

486 of the 1,046 Bridges that were SD in October, 2014 Remain SD Today

486 Bridges from Fall, 2014 Remain SD Today

Remaining

486
Progress on SD, NBI Bridges Since 2014

- Remaining 486
- Deteriorated Into SD 142

628 SD Bridges February, 2018
Plan for Bridges that are Currently SD

Number of SD NBI Bridges

- 628 SD Bridges (February, 2018)
- In SGR/Construction Program to be Addressed by 2023
  - 222
- Structures Remaining SD Since 2014
  - 406
Strategically Addressing Future Deterioration
50 Year NBI Bridge Replacement Need vs. Available Funding (Billions)

Assumes Bridges Replaced at Age 70

Best Case Fund Availability (50 Years) vs. 50 Year Replacement Need

- Best Case Fund Availability: $11B
- 50 Year Replacement Need: $54B
SGR Prioritization Formula
Selection of Structures for Intervention

Priority = .3(IF) + .25(CF) + .15(RF) + .1(SCF) + .2(CEF)

All five unitless variables have a 0 to 1.0 scale

- **IF = Importance Factor**
  measures the relative importance of each bridge to the overall highway network

- **CF = Condition Factor**
  measures the overall physical condition of each bridge based on the condition of each individual element

- **RF = Risk Factor**
  measures four important risk factors: Redundancy, Scour Susceptibility, Fatigue, and Earthquake vulnerability

- **SCF = Structure Capacity Factor**
  measures the capacity of the structure to convey traffic, including the effects of weight restrictions, waterway adequacy, vertical clearance and deck width

- **CEF = Cost-Effectiveness Factor**
  measures the cost-effectiveness of the required work
Being Cost-Effective: Targeted Repairs and System Preservation
Steel Beam End Repair – During Construction
Superstructure and Substructure Surface Repair
Joint Elimination
Overlays
Bridge Coating
We Could Sustain Bridge Conditions with an *Immediate* 40% - 50% Increase in Maintenance Funds if the Additional Money is Dedicated Solely to System Preservation Activities
Thank you for your time and attention