Keep Virginia Moving
Chapter 2 (2018) Requirements for Virginia’s Large & Unique Bridge and Tunnel Structures

• **CTB Report by December 1, 2018**
  - Overall condition
  - Funding needs
  - Recommendations for addressing funding* within the State of Good Repair program

• **Assess the Impact of**
  - Establishing a set-aside from the State of Good Repair program
  - Limited use of allowing district minimum cap waiver (§ 33.2-369(B))
  - Other options the Board identifies

*Eligibility
Special Structures Challenges

- Currently no dedicated funding mechanism in code

- Typically do not qualify as structurally deficient
  - Legislative requirement for State of Good Repair (SGR) funding

- *No end of life decision protocol within current code*
  - Continue to maintain
  - Rebuild

- SGR fund not big enough
  - Potential for Reserve Fund
## Special Structures Challenges

<table>
<thead>
<tr>
<th>Special Structure Needs</th>
<th>Estimated $1.7 B over 30 years in FY 2017 dollars</th>
</tr>
</thead>
<tbody>
<tr>
<td>SGR Funding</td>
<td>Projected FY 2019 – FY 2024 - $961 M* or</td>
</tr>
<tr>
<td></td>
<td>Projected ITD - FY 2017 – FY 2024 - $1.1 B</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Structurally Deficient Bridges</th>
<th>*935 Structurally Deficient Bridges as of July 1, 2017 (851 as of July 10, 2018)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>243 funded with State of Good Repair</td>
</tr>
<tr>
<td></td>
<td>326 funded with other funds</td>
</tr>
</tbody>
</table>
What Makes Structures Special

- Risk (Fracture-Critical)
- Complexity
- Maintenance Cost
- Importance
  - Long Detours
  - High Traffic
  - Economic Significance (Shipping and Vehicular)
  - Access to Vital Facilities (Military and Ports)
Special Structures – Categories – VDOT Owned

- **Tunnels**
  - Big Walker
  - East River
  - Hampton Roads Bridge Tunnel
  - Monitor-Merrimac Memorial
  - Elizabeth River Downtown
  - Elizabeth River Midtown
  - Rosslyn

- **Movable Bridges**
  - Chincoteague*
  - High Rise*
  - Berkley*
  - Coleman*
  - James River*
  - Benjamin Harrison*
  - Eltham*
  - Gwynn’s Island*

- **Complex Fixed Spans Structures**
  - Varina-Enon
  - Norris*
  - I-64 over Willoughby Bay
  - MMBBT Approach Bridges
  - James River Bridge Approach Spans
  - High Rise Bridge Approach Spans
  - Smart Road
  - Pocahontas Parkway
  - 460 Connector

*Fracture Critical*
Virginia - 16% of America’s Highway Tunnels Over 3,000 feet (2nd Behind Pennsylvania)

East River Mountain Tunnel – Bristol District

July, 2014 Fire

Monitor Merrimac Bridge Tunnel

Big Walker Mountain Tunnel
Bristol District

12 Mile Detour
Variety of Movable Bridges

- Coleman Bridge – Largest Double Swing Span in America
- Chincoteague – Replaced in 2010
- James River Bridge – VDOT’s Longest Bridge 4.4 Miles Long
- Gwynn’s Island – Sole Access to Island
- Benjamin Harrison Bridge – Lift Span
Movable Bridges
Critical to Maritime and Highway Traffic

Berkley Bridge – Hampton Roads District

Coleman Bridge - Serves Naval Vessels

Benjamin Harrison Bridge after 1977 Ship Impact
Movable Bridges - Aging, Complex Components. Custom Parts with Long Lead Times (Up to 2 Years) to Replace

- Gwynn's Island Aging Generator
- Benjamin Harrison Bridge Machinery
- Berkley Bridge Drive Gear
Large and Complex Spans

Norris Bridge - Fredericksburg District

460 Connector - Bristol District

Varina-Enon Bridge – Richmond District
Special Structures in Hampton Roads
Critical Access to Military and Commercial Facilities

20 Major Military Facilities
Including Norfolk Shipyard and Naval Airbase - Home of the Atlantic Fleet

Critical Commercial Facilities
• Port of Virginia
• CSX Terminal
• Newport News Shipbuilding

Other Facilities
• 4 Universities & 1 Medical School
• VA Beach Waterfront
• Busch Gardens
• Colonial Williamsburg
• Parks & Cultural Centers
Special Structures Importance
Hurricane Evacuation
Funding For Special Structures

- State of Good Repair Funds defined for SD – not eligible
  - Work to keep these structures off SD
  - Tunnels do not have an SD designation
- SMART SCALE – not eligible unless new capacity
- Majority of Special Structures Funding provided by M&O Program
  - Maintenance and Operations Program funds
    - Federally-mandated inspection and load rating
    - Movable bridge operations
    - Routine maintenance
- High replacement costs
  - Typically in the hundreds of millions or billions
Special Structures
Challenges

• Currently no dedicated funding mechanism in code

• Typically do not qualify as structurally deficient
  • Legislative requirement for State of Good Repair (SGR) funding

• *No end of life decision protocol within current code*
  • Continue to maintain
  • Rebuild

• SGR fund not big enough
  • Potential for Reserve Fund
Special Structures
Next Steps

• Review other states
  • Current practices
  • Lessons learned
• Identify Needs
  • Useful life of the structures and components
• Review of potential funding sources
• Present findings to the Board
QUESTIONS