VDOT

Virginia Department of Transportation

State of Good Repair

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Chief Engineer

Asset Management Approach

Asset Management Business Process

Maintenance and Operations Needs

Annual Pavement Needs Methodology

- **VDOT pavement management business processes use established asset management principles and policies**
  - **Annual condition assessment**
    - 100% interstate pavements
    - 100% primary pavements
    - 20% secondary pavements
- **Set performance targets and goals**
- **Optimization of available funds using pavement management software**
- **Performance monitoring and reporting**

Annual Bridge Needs Methodology

- General condition data collected by safety inspection personnel
  - Inspecting since the 1970s
  - Over 10,000 structures inspected annually
  - Performing quality assurance checks on data since 1990s
  - Follow national standard in data collection
  - Annual training certificate requirements
- Use nationally recognized bridge management software
  - Unit cost of repair based on current contract prices
  - Bridge management system provides work recommendations
  - Engineering judgment to prioritize work

VDOT Needs

- **VDOT uses nationally recognized methods to assess the condition of assets**
- **The CTB has set certain performance targets for pavements and bridges:**
  - **Pavement Performance Targets**
    - Interstate – 82% (no section less than 30 CCI Value)
    - Primary – 82%
    - Secondary – 65%
  - **Bridge Performance Targets**
    - All Systems - 92%
- **Needs presented are funds to meet performance measures/targets for a sustained program**
- **VDOT must perform services such as**
  - **Snow Removal and Emergency Operations**
  - **Routine Maintenance**
  - **Incident Response**
  - **Drainage**
  - **Traffic Operations Center – 24 hour service**
  - **Mowing**

VDOT Maintenance and Operations Categories for Needs and Allocations

- **Roads includes**
  - **Pavements, Unpaved Roads, Pothole Patching**
- **Bridges includes**
  - **Inspection, Sweeping, Painting, Movable Bridges**
- **Other Services and Repairs includes**
  - **Tunnels**
  - **Emergency and Incident Management includes**
    - Snow and Ice Removal, Traffic Operations Center, Incident Response
  - **Traffic includes**
    - Guardrail, Markings, Markers, Messages, Signals, Signs
  - **Roadside Maintenance includes**
    - Drainage and Slopes, Vegetation Management, Mowing, Sound Barriers and Fences
  - **Facility and Other includes**
    - Rest Areas, Ferries, Sidewalks and Trails, Salaries, Equipment

VDOT Needs and Budget

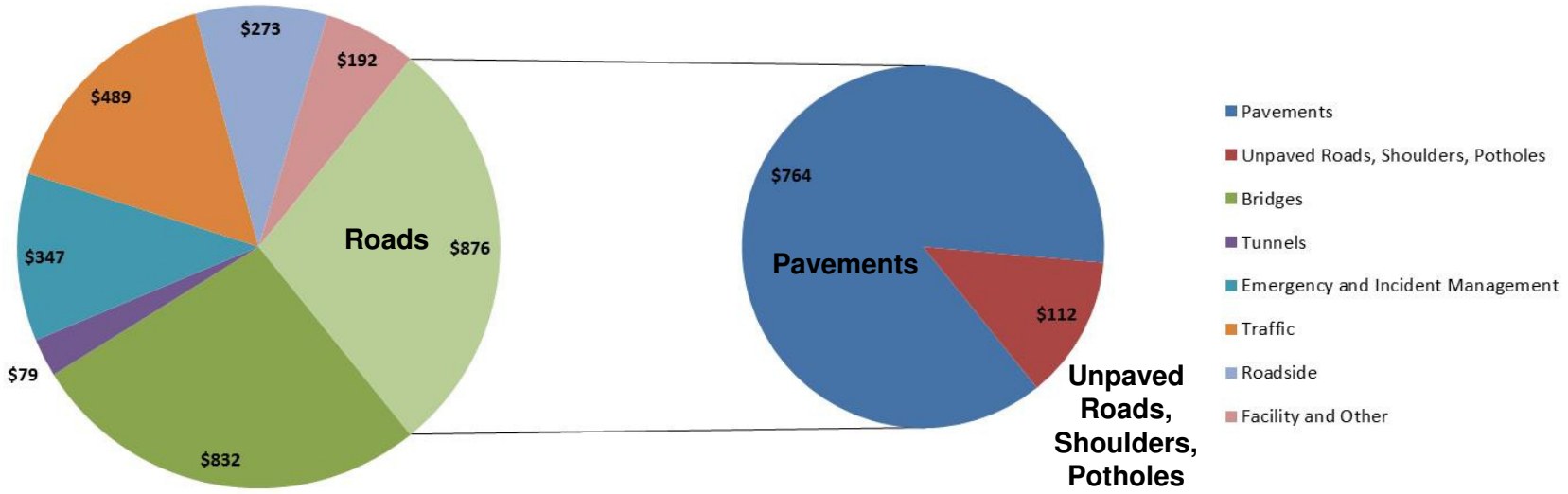
FY 2016 VDOT Annual Needs and Preliminary Proposed Allocations For Existing Infrastructure ($ Millions)

Description	Annual VDOT Needs	Preliminary Proposed M&O Allocations	Preliminary Proposed Construction Allocations*	Total Preliminary Proposed Funding	Difference between Needs and Allocations
Roads	**$876**	$398	$78	**$476**	**($400)**
Bridges	**832**	187	145	**332**	**(500)**
Other Services and Repairs	**1,380**	973	7	**979**	**(401)**
Total	**$3,088**	$1,558	$229	**$1,788**	**($1,301)**

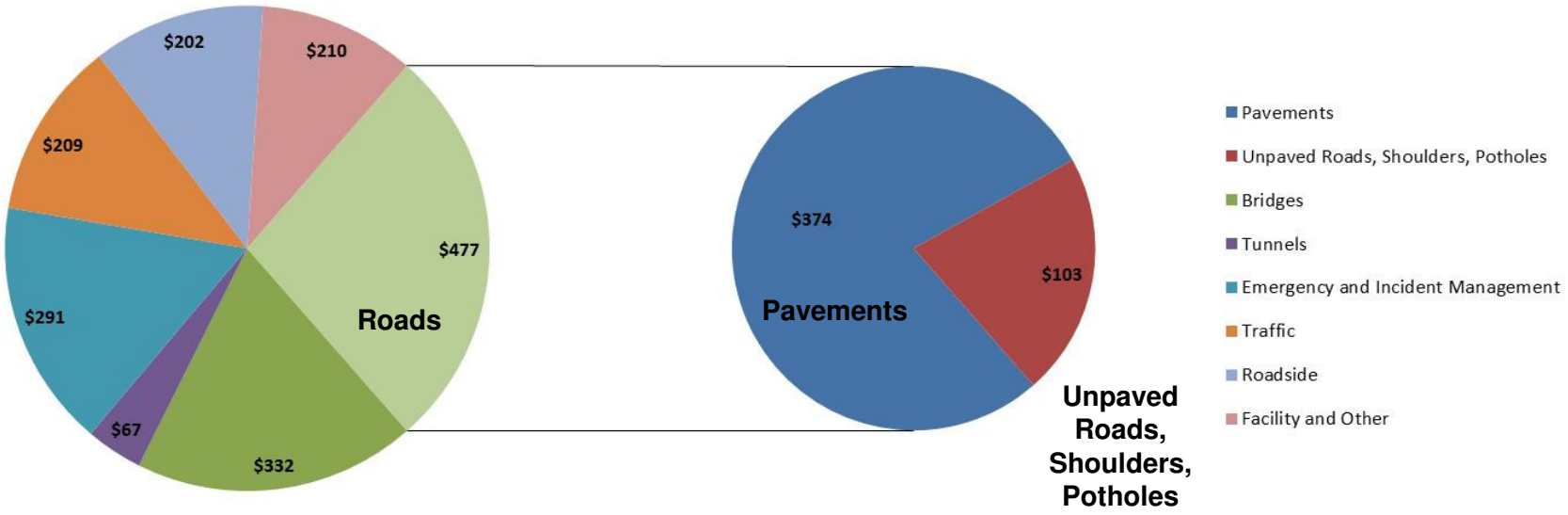
*Preliminary Proposed Construction Allocations are averaged to annualize the allocations

Note – Totals may not equal sum of the parts due to rounding

VDOT FY 2016 Needs Breakdown ($ Millions)

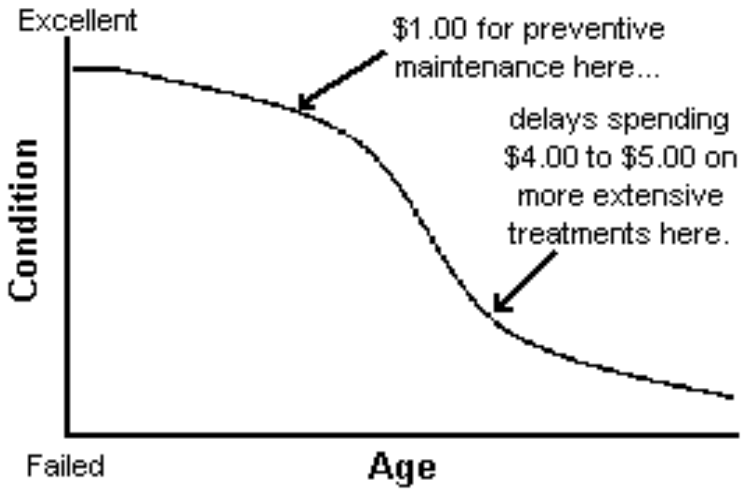


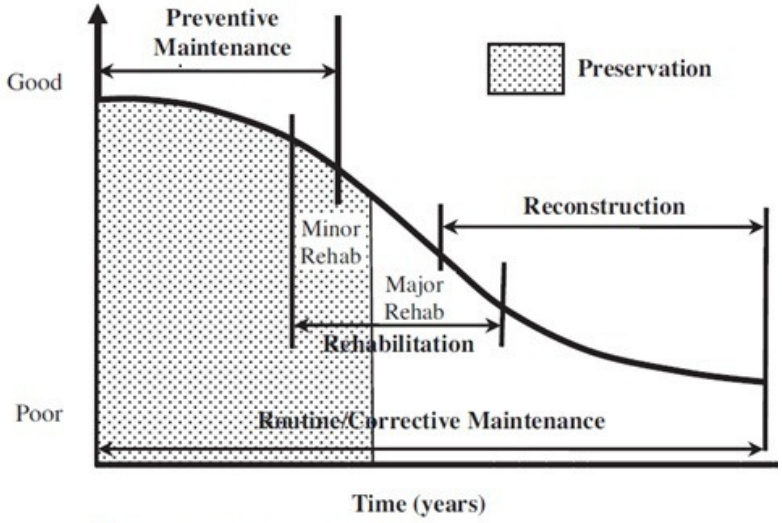
VDOT Anticipated FY 2016 Funding Distribution ($ Millions)



System Preservation

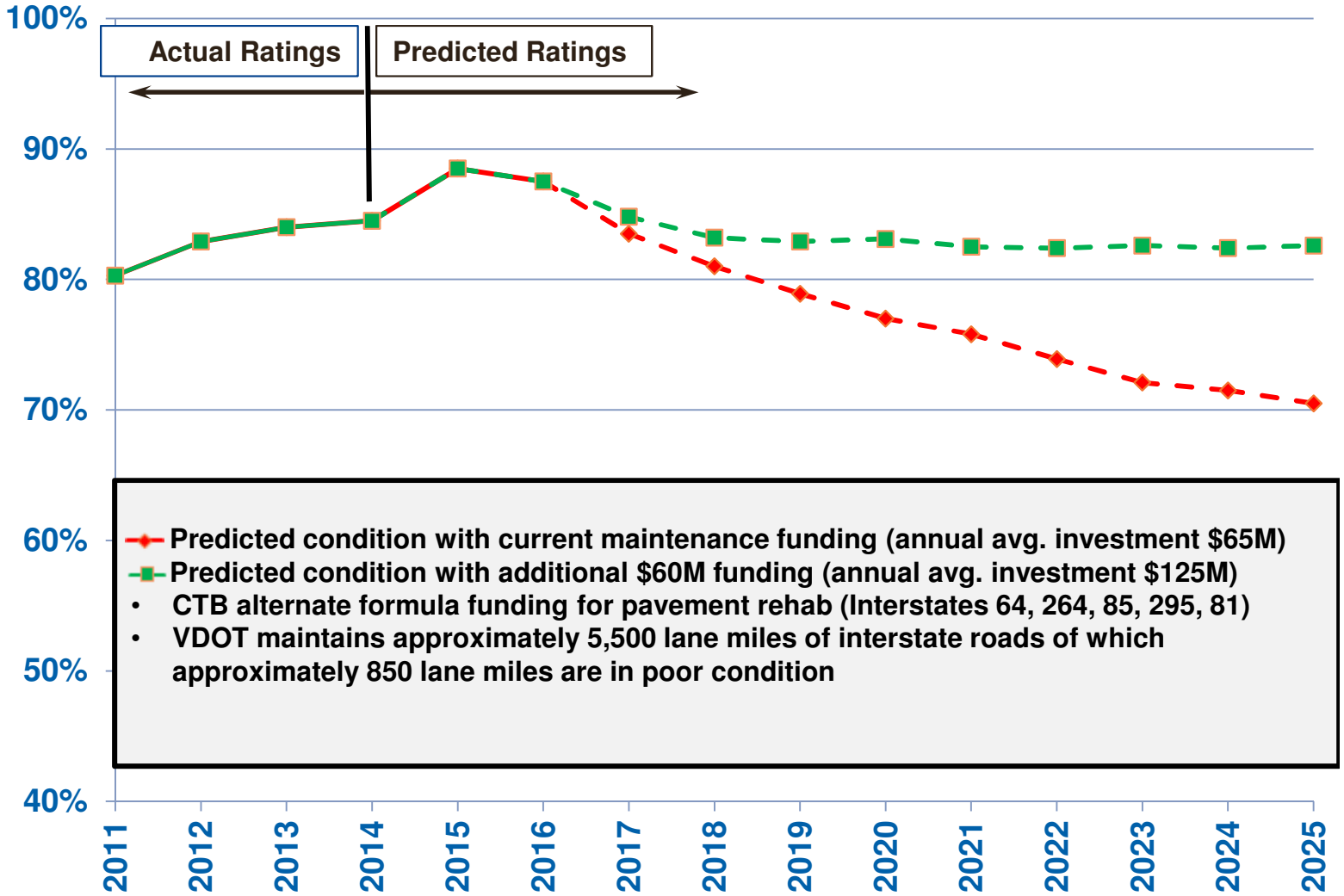
- **Need a <u>sustained</u> annual investment of an additional $300-350 M per year to preserve and stabilize the condition of pavements and bridges for long-term in Virginia**
  - **Focus on preventive maintenance**
- **HB1887 will assist in closing the gap**





Source: Adapted from Peshkin et al. 2007.

Interstate Pavement
Past and Predicted Conditions
(Percent Sufficient)



- Predicted condition with current maintenance funding (annual avg. investment $65M)
- Predicted condition with additional $60M funding (annual avg. investment $125M)
- CTB alternate formula funding for pavement rehab (Interstates 64, 264, 85, 295, 81)
- VDOT maintains approximately 5,500 lane miles of interstate roads of which approximately 850 lane miles are in poor condition

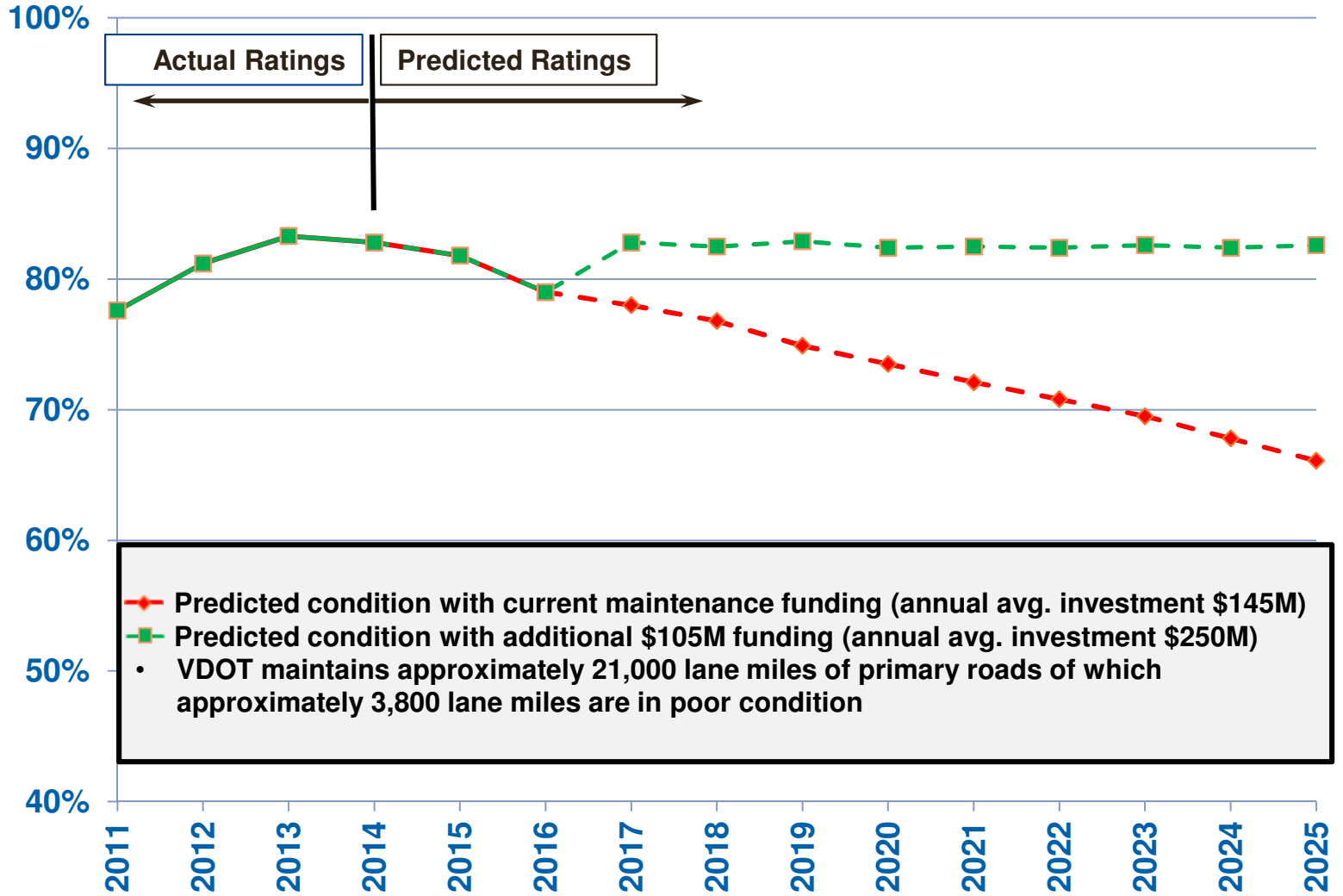
Interstate Pavement Rehabilitation
I-64/264



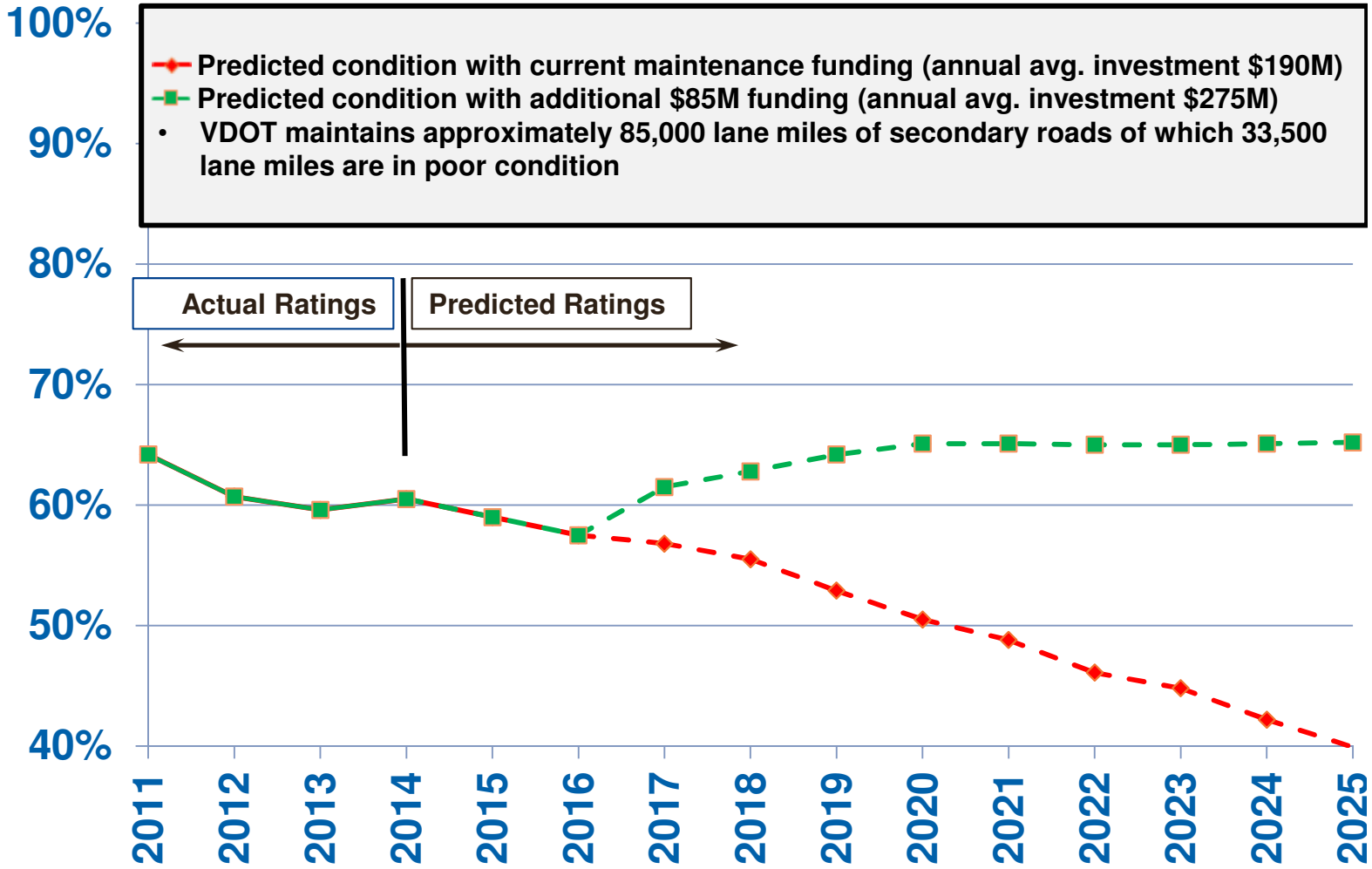




Primary Pavement
Past and Predicted Conditions
(Percent Sufficient)



Secondary Pavement
Past and Predicted Conditions
(Percent Sufficient)



New Materials/Technology/Innovation
Increased Use of Recycled Asphalt Pavements

In-place Recycling

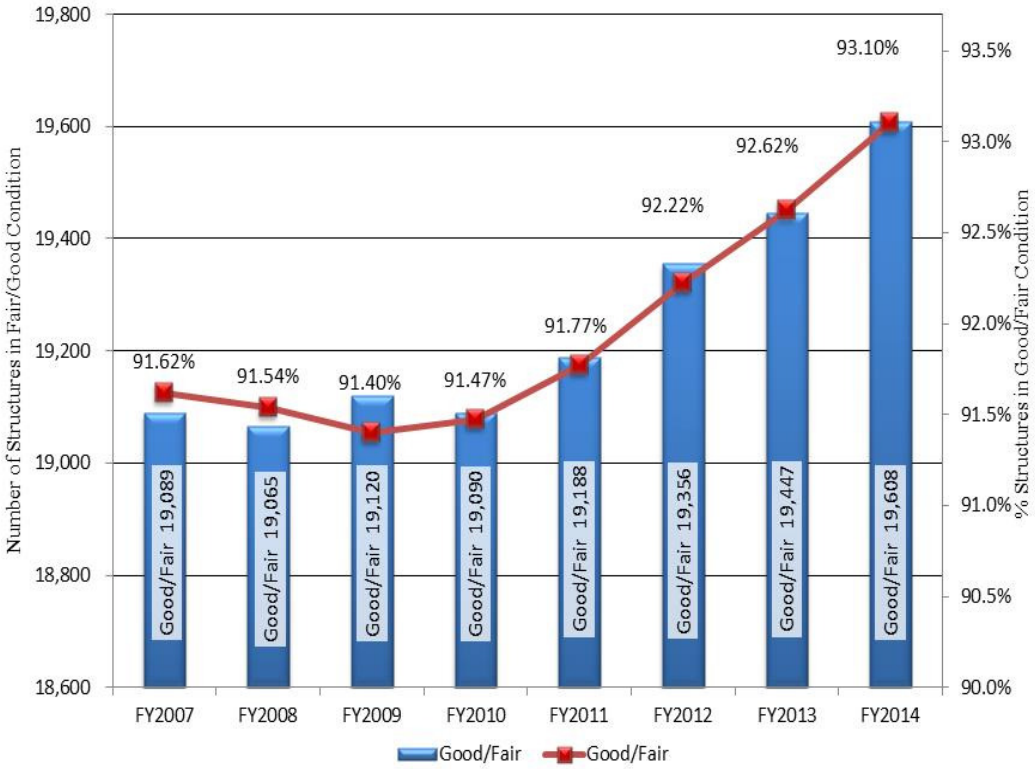
Full Depth Reclamation

SM 4.75 (Thin Asphalt Mix)

High Polymer Asphalt Mixes

Bridge Assessment

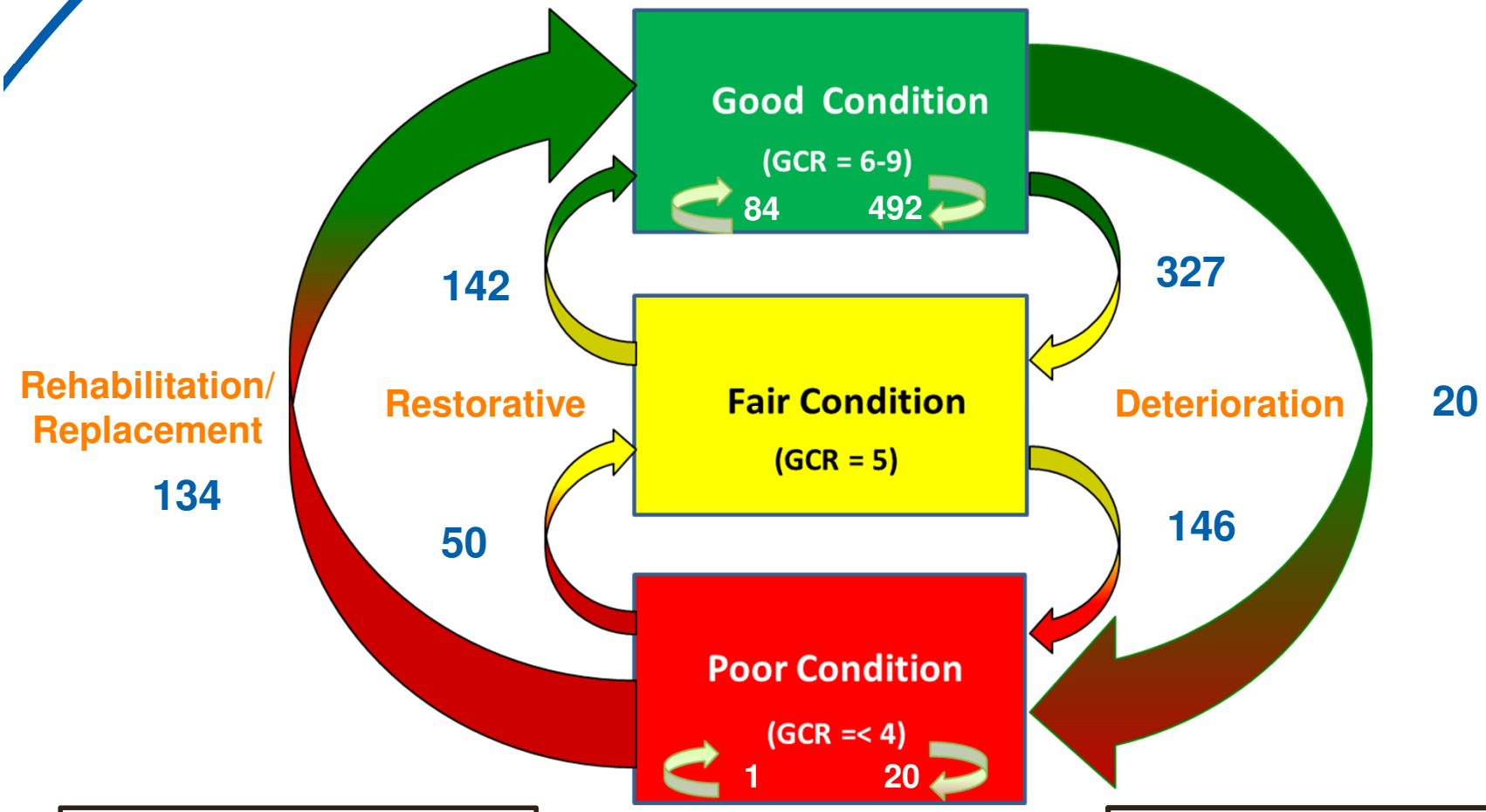
Statewide Inventory Rated Not Structurally Deficient



Number of Structures (Bridges and Culverts)				
System	**Interstate**	**Primary**	**Secondary ***	**Total**
Total	2,399	5,797	12,865	21,061
SD	57	275	1,121	1,453
* Includes Urban Bridges				

Changes to Bridge General Condition Ratings

FY2014

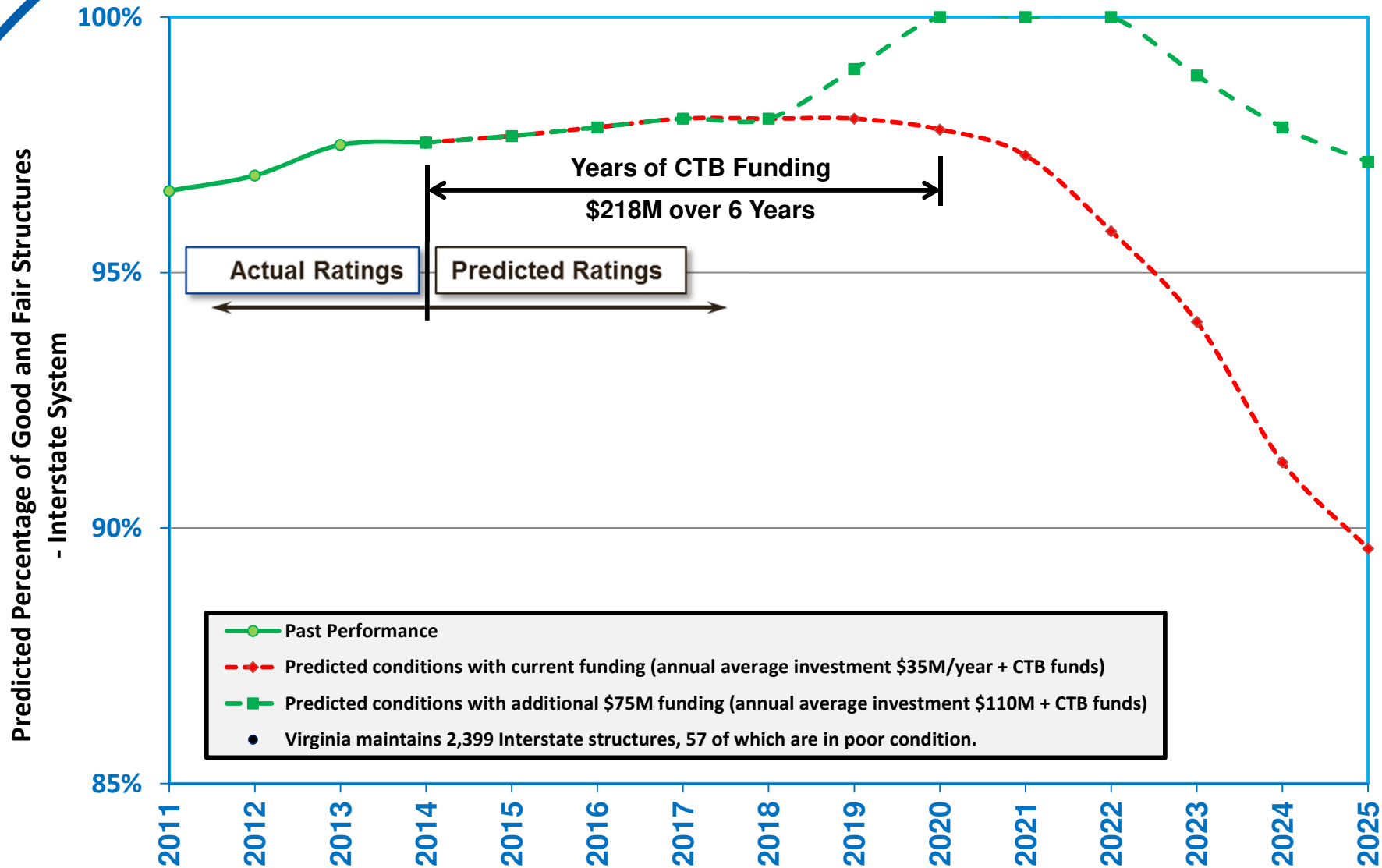


Number Improved = 411

Number Deteriorated = 1,005

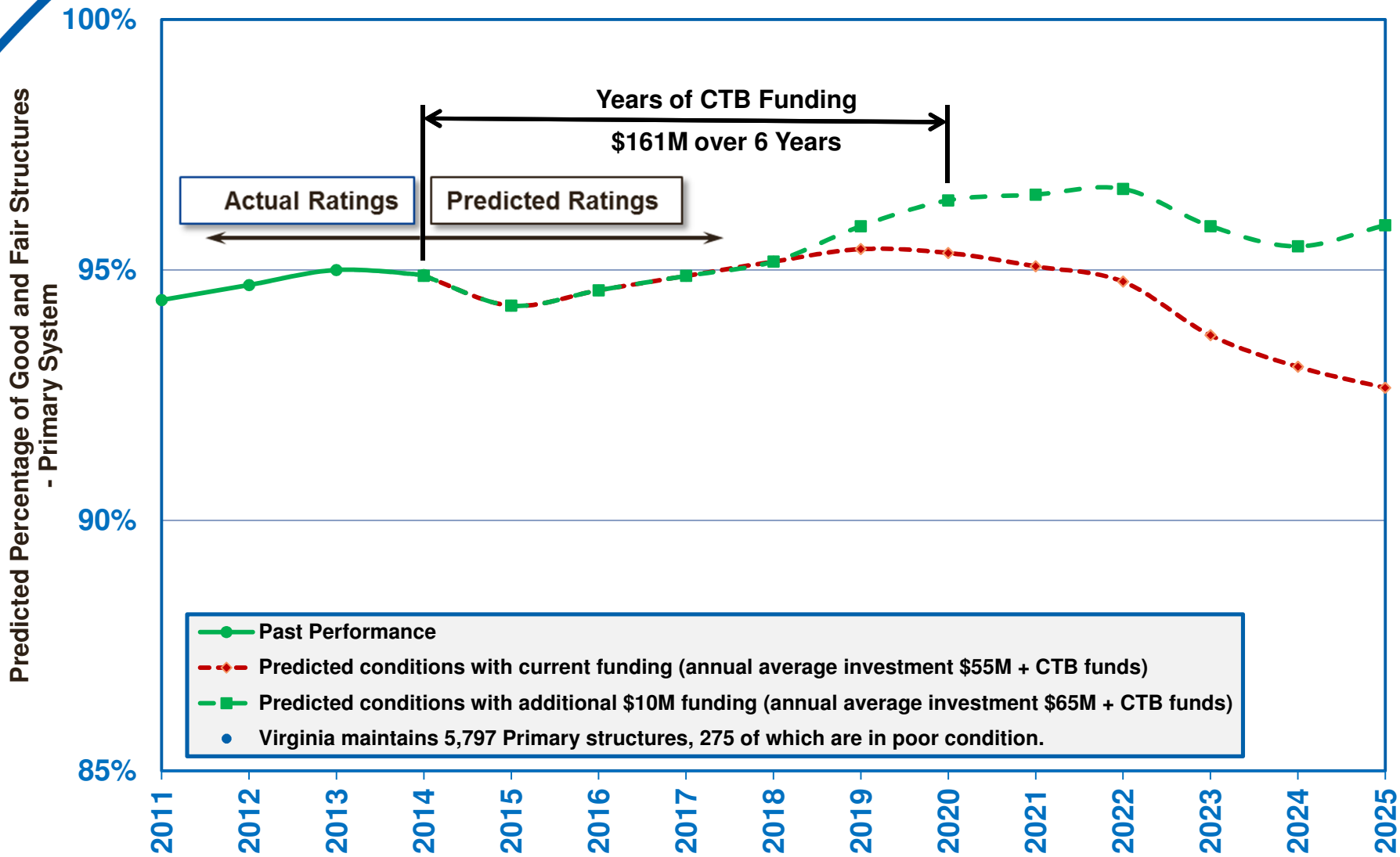
Interstate Bridge

15 Year Model: Predicted Percentage of Good and Fair Structures



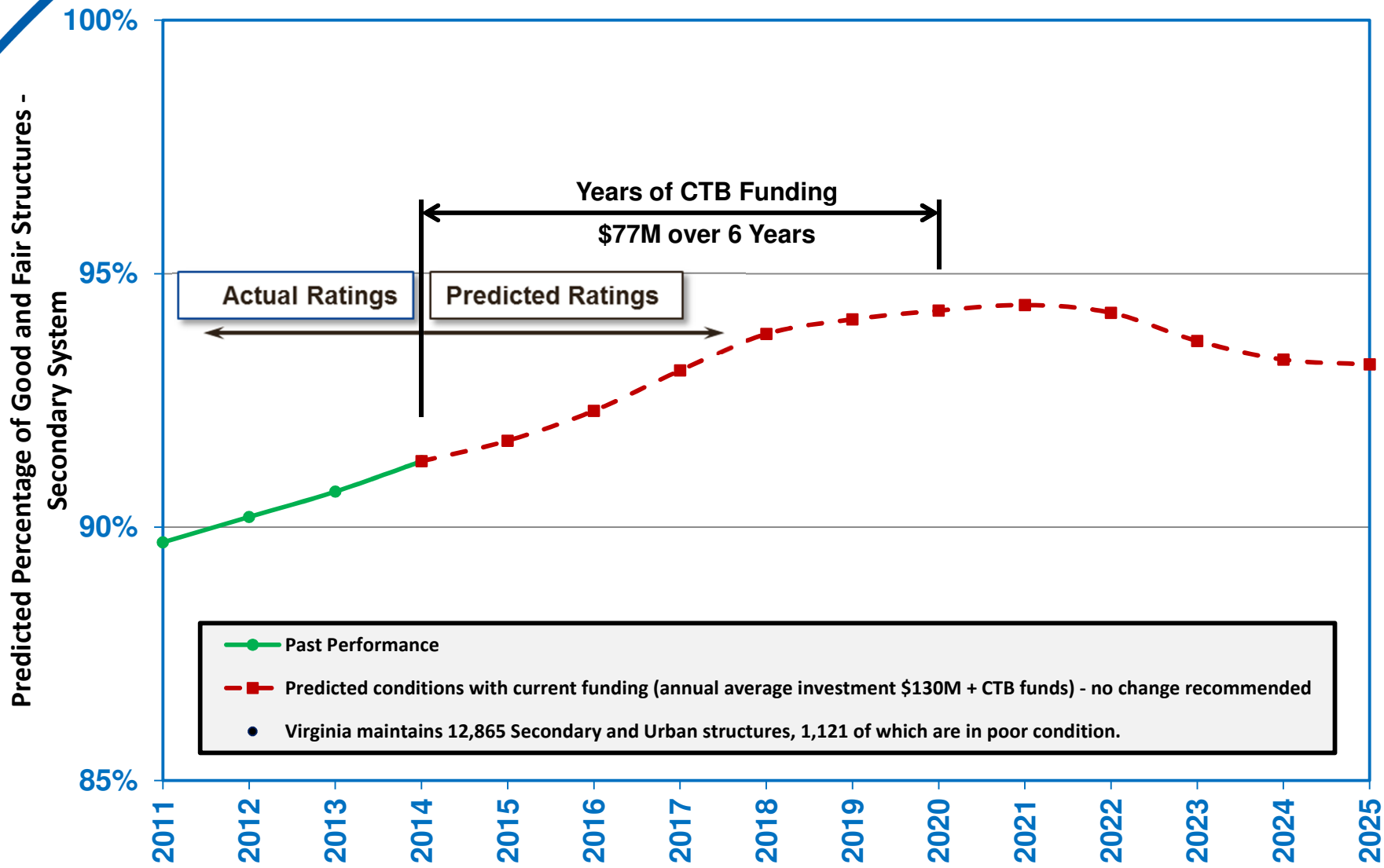
Primary Bridge

15 Year Model: Predicted Percentage of Good and Fair Structures



Secondary Bridge

15 Year Model: Predicted Percentage of Good and Fair Structures



What are We Doing to Address the Bridge Needs

- 10,000 Safety Inspections Performed Annually
- Design Practice
  - Jointless New Structures
  - Elimination of Joints on Existing Structures
  - Replace Steel Elements with Concrete
  - Common Sense Design
    - Use Only the Geometrics Needed
- Improved Materials in Construction
  - Corrosion Resistant Reinforcing Steel
  - Low Permeable Concrete
  - Carbon Fiber Prestressing Strands
  - Stainless Steel Prestressing Strands

What are We Doing to Address the Bridge Needs

- **New Product Testing**
  - **Joint Material**
  - **Repairs to Prestressed Beams**
  - **Inverted Tee Beams**
  - **Hillman Beams**

- **Contract Development**
  - **2015 - $25M Additional Maintenance Funding**
    - Proactive Interstate Maintenance
    - Preliminary Engineering to Develop a Backlog of Maintenance Projects
    - Repairing or Replacing Structurally Deficient Structures
  - **Interstate Preventative Maintenance Contract Templates**
  - **District On-Call Maintenance Contracts**

- **District Bridge Crews**
  - **Repairing over 130 Structurally Deficient Structures Per Year**

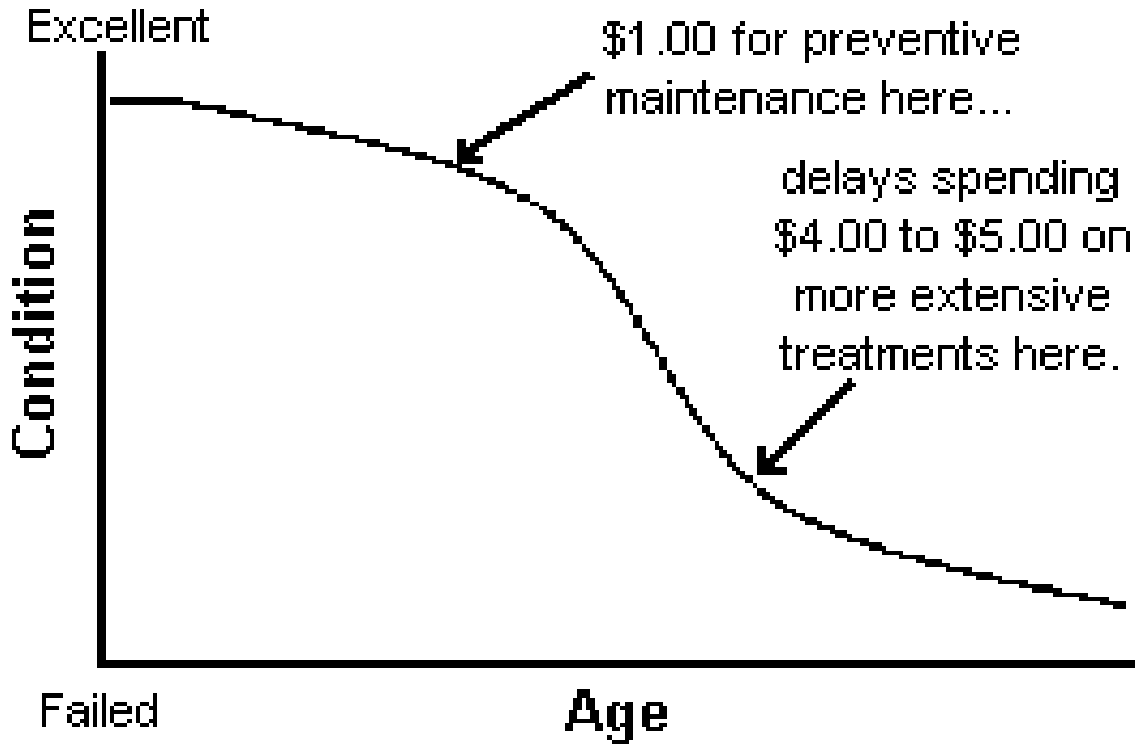
Anticipated Impact of HB 1887

- **Legislation acknowledges long term need for funding state of good repair**
- **Bill dedicates 40% of formula for major highway and bridge improvements**
- **Provides significant dedicated funds to achieve and maintain state of good repair**

What is VDOT doing to try to make up for the shortfall?

- Redistribution of funds when savings are realized – $10-$20M
- Pavement self-inspection pilot – up to $5M
- Bonus OA – $30-$57M per year
- Take advantage of federal grants
- Shelf ready projects
- Practical design – up to $20M
- New technology
- Emergency Operations – snow removal – up to $30M
- Innovative revenue opportunities
  - 511
  - Right of Way
  - Sponsorships
- Construction projects

Purpose of State of Good Repair



Investing $1 today will prevent spending $4 to $5 tomorrow