

2020 Annual Virginia Concrete Conference

VDOT Chief Deputy Commissioner Rob Cary, P.E., L.S.

February 27, 2020

Mission & Priorities

**Plan, deliver, operate and maintain
a transportation system that is safe,
enables easy movement of people and goods,
enhances the economy and
improves our quality of life.**



Our mission remains the same.

Virginia: A Leading State + DOT

RANKED **#1** BY
CNBC AS THE
2019 TOP
STATE FOR
BUSINESS



7TH IN NATION
FOR THE # OF
FORTUNE
1000
COMPANIES



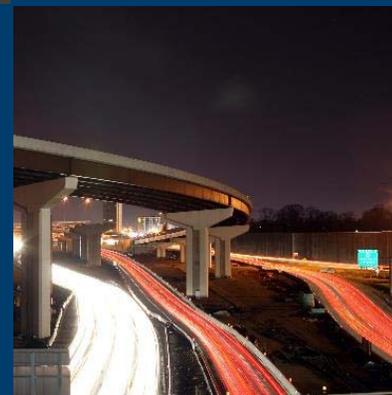
HOME TO
MORE THAN
60 COLLEGES
AND
UNIVERSITIES



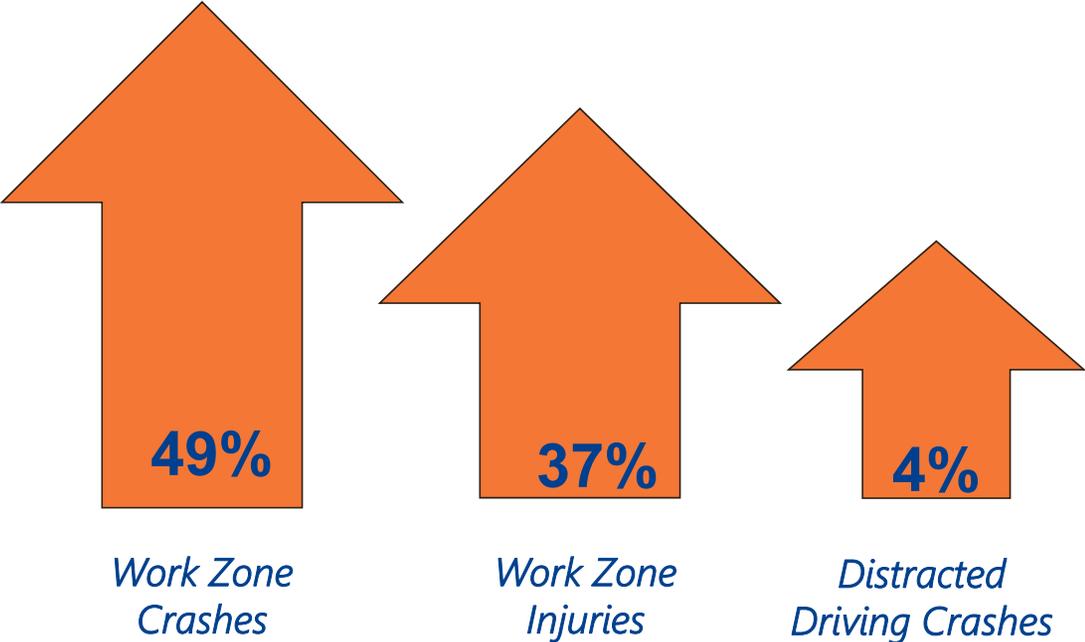
8.5 MILLION
RESIDENTS



VIRGINIA IS
THE **3RD**
LARGEST
STATE-
MAINTAINED
SYSTEM



Work Zone Crashes Were on the Rise in 2019



VDOT is BIG Business



VDOT OF TOMORROW

1

PREPARE OUR PEOPLE



- We will be willing to learn
- We will mentor each other
- We will support new ways of working

2

EMPOWER INNOVATION



- We will generate new ideas
- We will listen and be open to change
- We will think outside of the box

3

MODERNIZE OUR METHODS



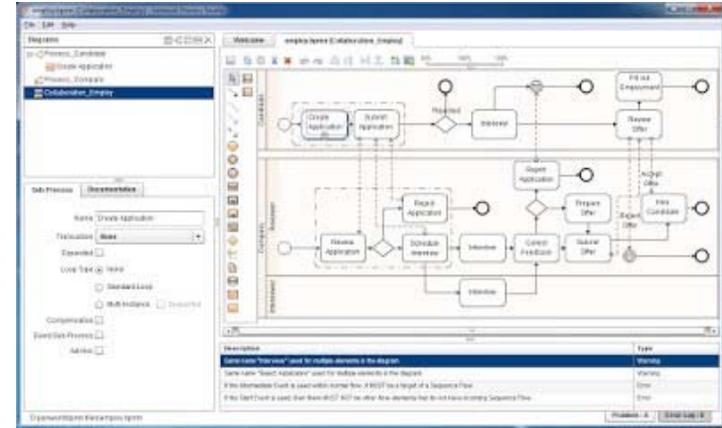
- We will research tools to better do our jobs
- We will explore new ways to do things
- We will learn how to work more efficiently

VDOT's commitment to continuous improvement



AASHTOWARE Project Construction and Materials Software

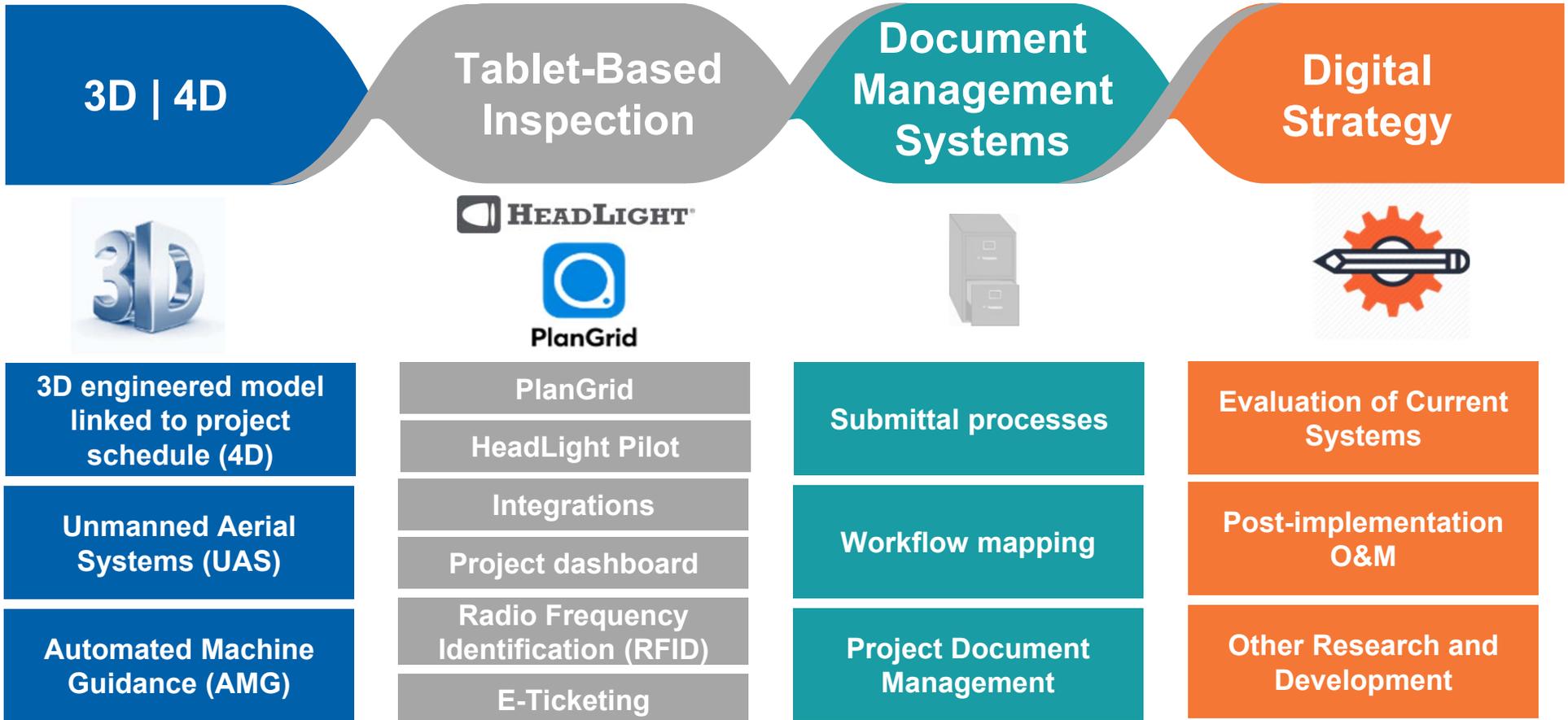
Track the complete construction and materials management process



Robotic Process Automation (RPA)

Automating repetitive tasks to allow VDOT to focus on bigger-picture issues

Technology Improvements | eConstruction Initiatives



Technology Improvements | eConstruction Initiatives

▶▶ **PlanGrid Pilot Program**

Began in September 2018

VDOT inspectors using iPads to review plans & documents, take pictures, and complete daily diaries

Full implementation beginning on projects advertised after January 1, 2020

▶▶ **HeadLight Pilot Program**

Phase 1 began in Fall 2018; Phase 2 began in Spring 2019

VDOT inspectors using iPads to complete daily diaries and material test reports

Phase 3 planned for 2020; full implementation in 2021 or beyond

▶▶ **eTicketing**

Special Provision will be revised to allow contractors to submit e-tickets to VDOT electronically (as an option not a requirement)

New Transportation Legislation in Virginia

Safety Measures under consideration

- Prohibiting the use of handheld cell phones while driving
- Banning open containers of alcohol in vehicles
- Making failure to wear a seatbelt a primary offense
- Allowing localities to lower speed limits

... to save more than 120 lives each year

New Transportation Legislation in Virginia

Governor's Omnibus Legislation (Amounts provided are based on Introduced Legislation)

- Dedicated state funding for Special Structures (\$80 million in FY 2023 with continued growth annually)
- Funding for Pavement Maintenance for both VDOT and City Maintained Streets (\$50 million by FY 2023)
- Additional state funding for SMART SCALE Distribution (\$90 million in the next four years)
- Creates Virginia Highway Safety Improvement Program with additional funding beyond today's federal HSIP program (\$115 million by FY 2024 with current HSIP funding)

Central Virginia Transportation Authority – HB 1541 creates Authority to administer approximately \$200 million annually for regional, transit and locality-specific needs

Major Initiatives

Hampton Roads Bridge-Tunnel Expansion Project

- Settlers Landing in Hampton to Interstate 564 Norfolk (10 miles)
- I-64 improvements include 6 lanes of highway and drivable shoulder, and construction of 4-lane bridge/tunnel
- New HRBT tunnels will serve eastbound traffic
- Two existing HRBT tunnels will serve westbound traffic



I-95 Projects Fredericksburg Area

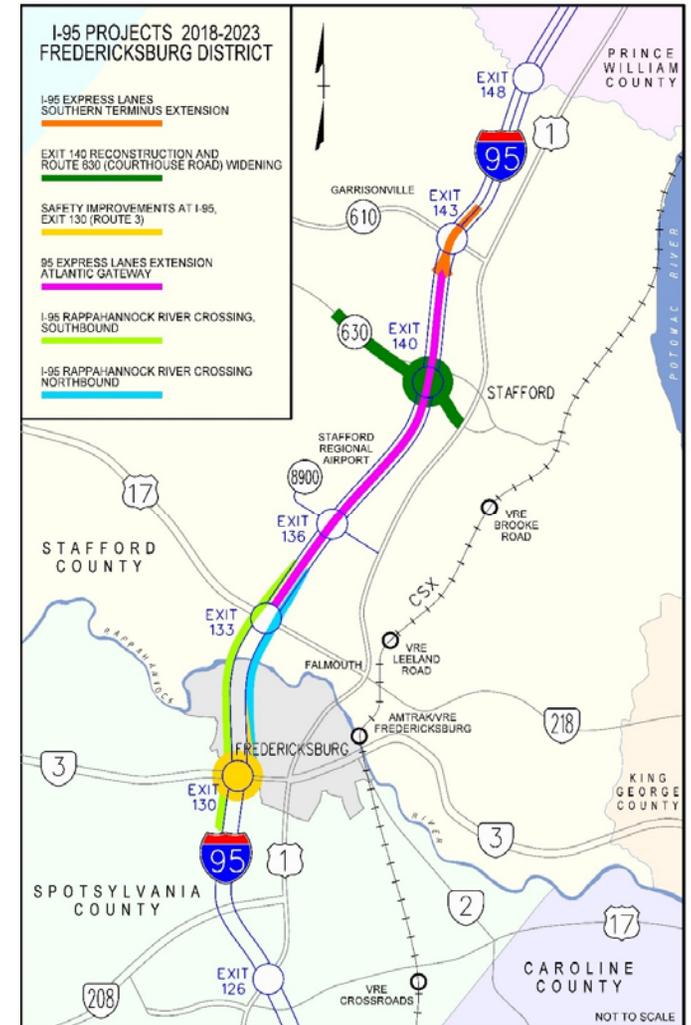
Nearly \$1 billion in highway corridor investment

Major I-95 projects finished by 2023:

- I-95 Express Lanes Fredericksburg Extension
- I-95 Rappahannock River Crossing – NB and SB
- Exit 140 Diverging Diamond Interchange and Widening

Plus:

- New commuter parking
- I-95 overpass replacements
- Virginia Railway Express station improvements



I-81 Corridor Improvements

\$2.2 billion in highway corridor investment

Major I-81 projects getting underway:

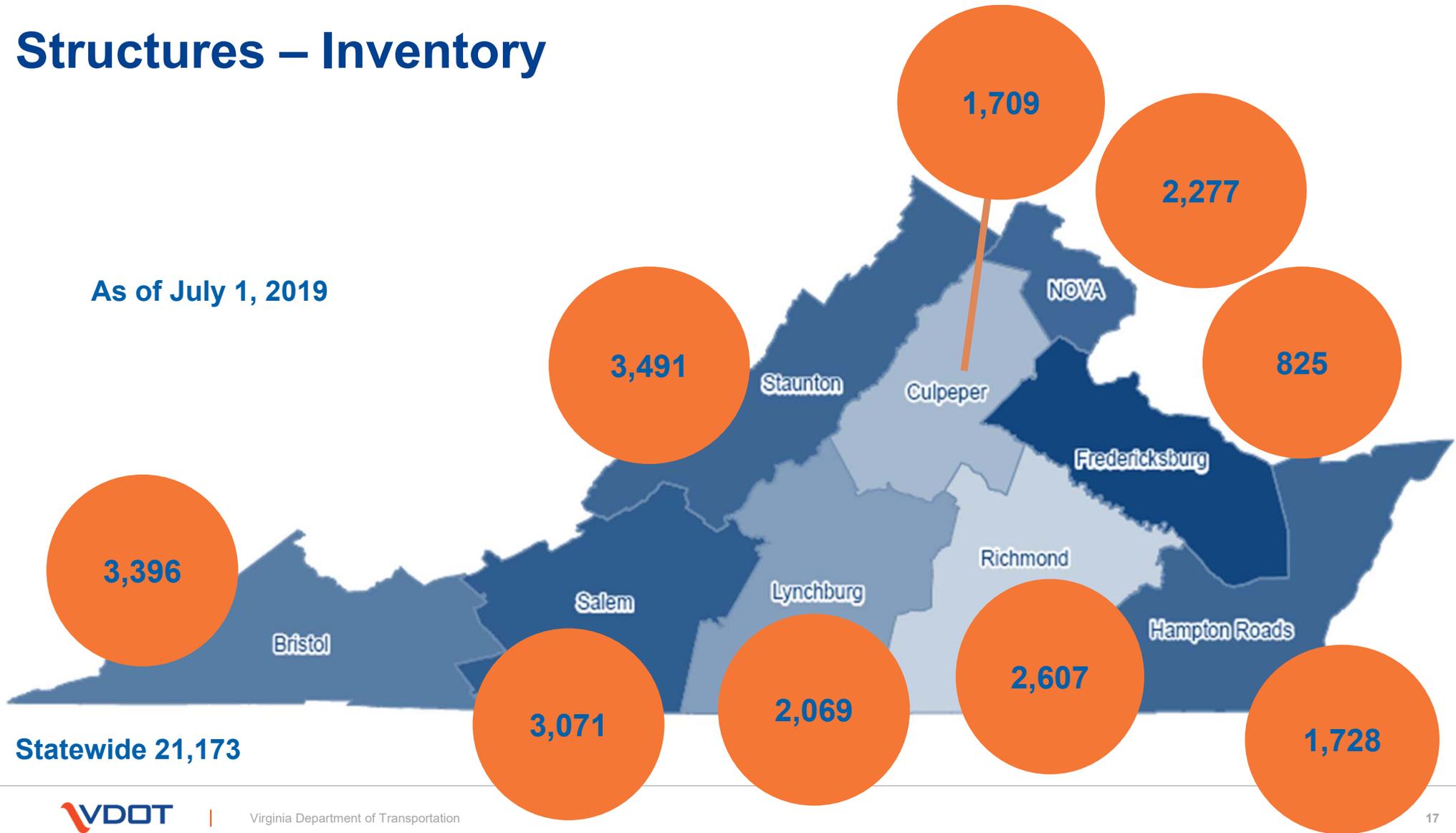
- 2 out of the 3 consultant design contracts were shortlisted and qualified team selected. The remaining contract had interviews 2/10/20
- 8 projects were advertised with 3 contracts awarded
 - 2 projects in Bristol (accel and decel lane extensions) awarded to W&L Construction
 - 1 corridor-wide CMS Boards contract advertised and awarded to Richardson & Wayland.
 - Remaining 5 projects (accel and decel lane extensions) where advertised January 7th as a bundle contract



Maintenance and Operations Comprehensive Review

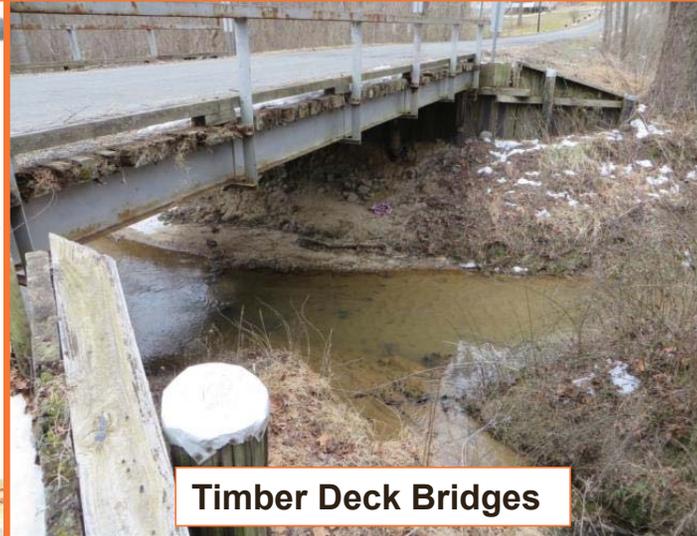
Structures – Inventory

As of July 1, 2019





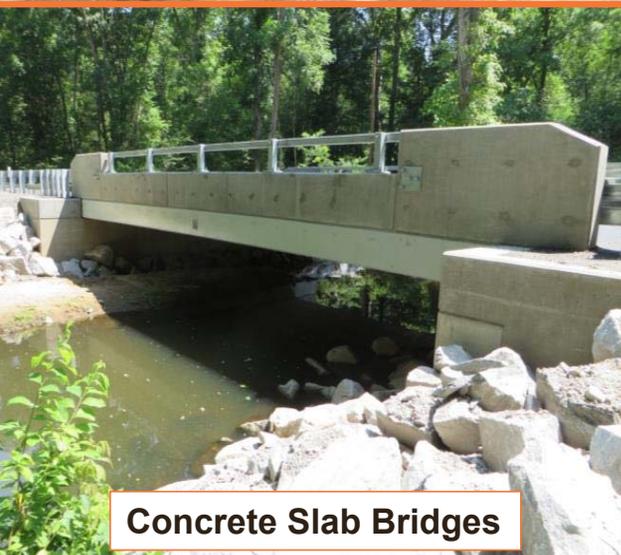
Metal Culverts



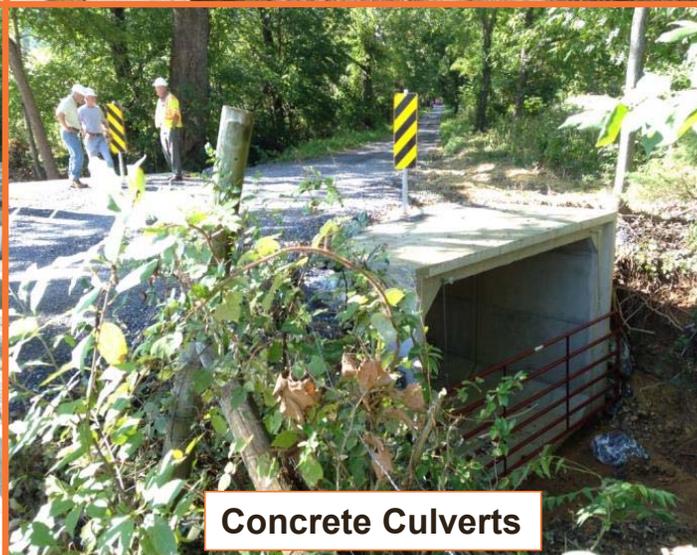
Timber Deck Bridges



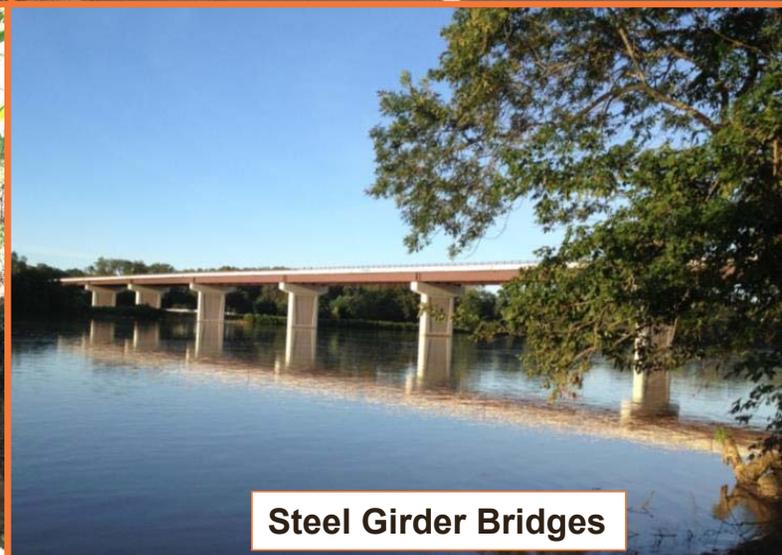
Concrete Girder Bridges



Concrete Slab Bridges



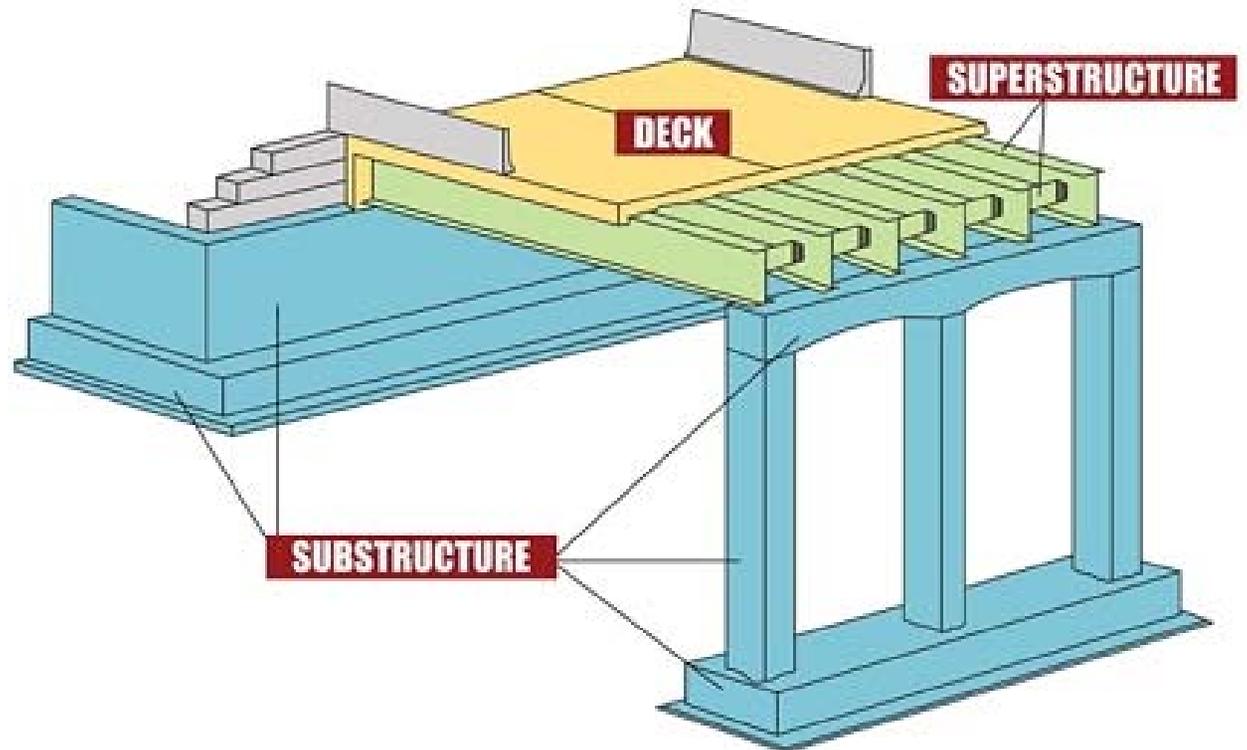
Concrete Culverts



Steel Girder Bridges

Rating – General Condition Rating (GCR)

Condition Category	General Condition Rating (GCR)	Description
Good	9	Excellent
	8	Very Good
	7	Good
Fair	6	Satisfactory
	5	Fair
Poor (Structurally Deficient)	4	Poor
	3	Serious
	2	Critical
	1	Imminent Failure
	0	Failed



Components of a Bridge

Examples of Good, Fair, and Poor Bridges

Good



Fair on the "CUSP" of Poor

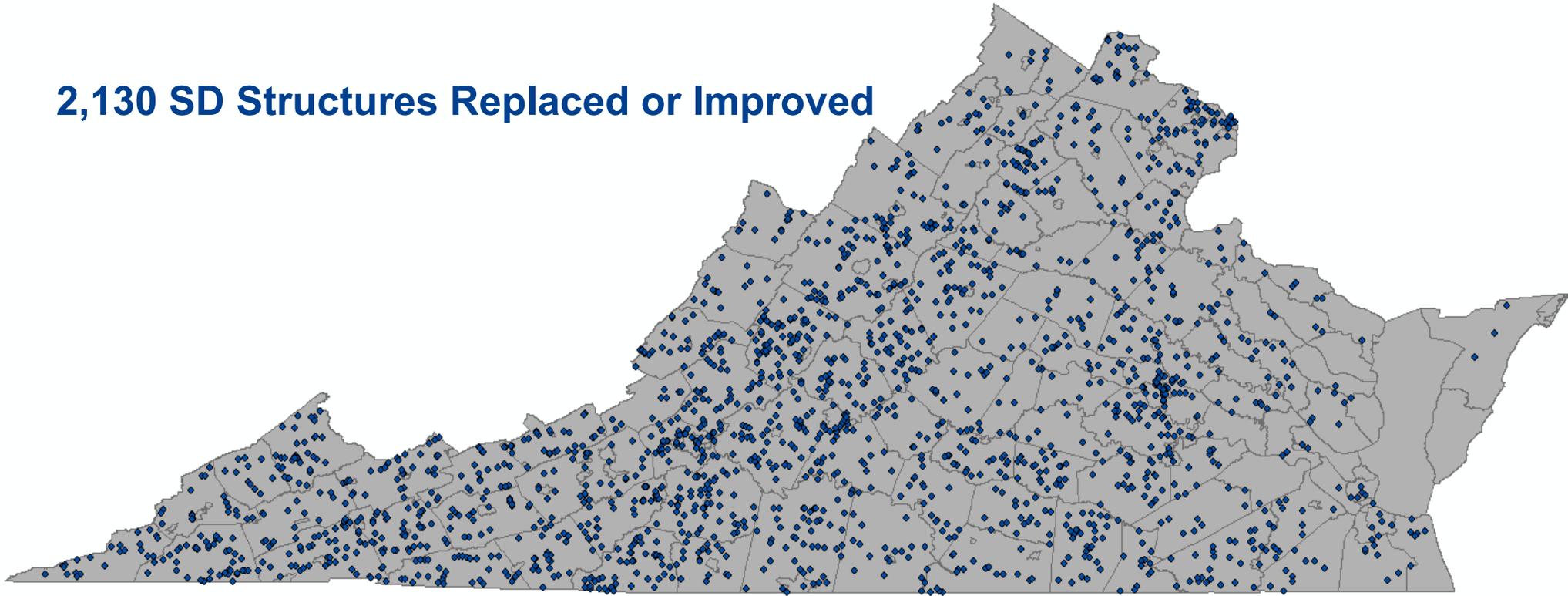


Poor (Structurally Deficient)



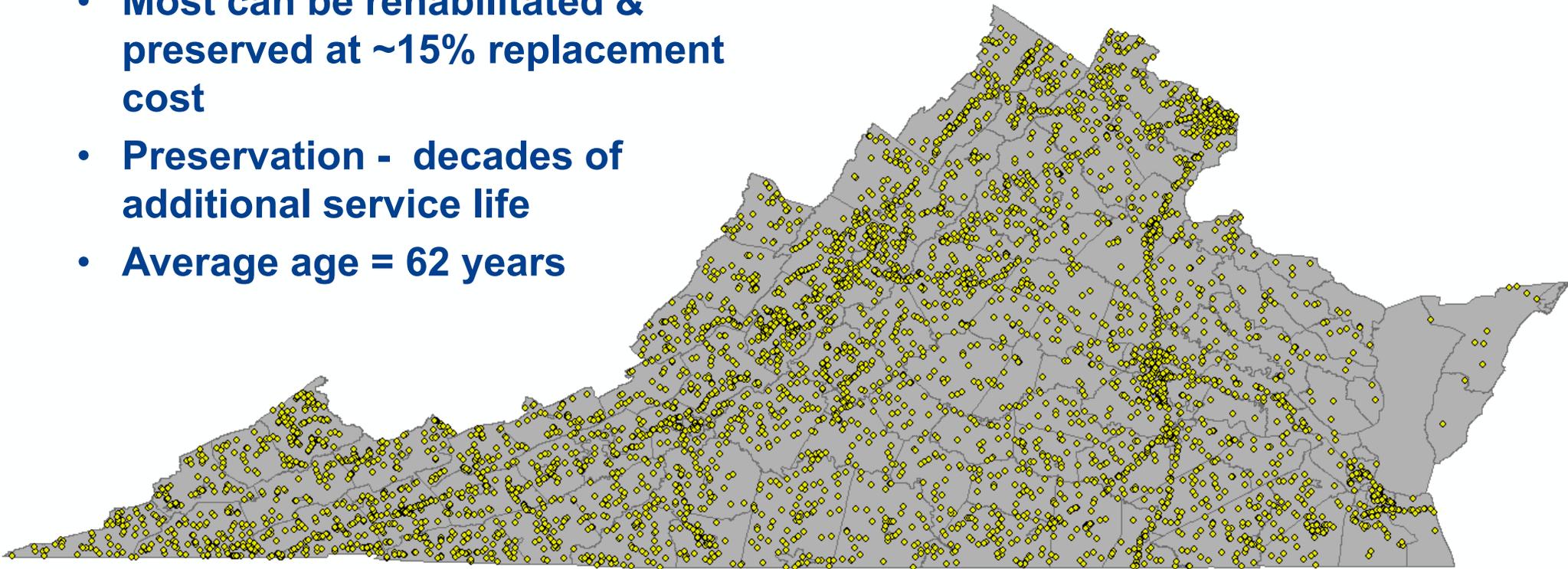
Structurally Deficient (SD) Structures Improved Since 2010

2,130 SD Structures Replaced or Improved



Next Challenge - 4,440 Structures on CUSP

- One inspection rating from becoming Poor (SD)
- Most can be rehabilitated & preserved at ~15% replacement cost
- Preservation - decades of additional service life
- Average age = 62 years

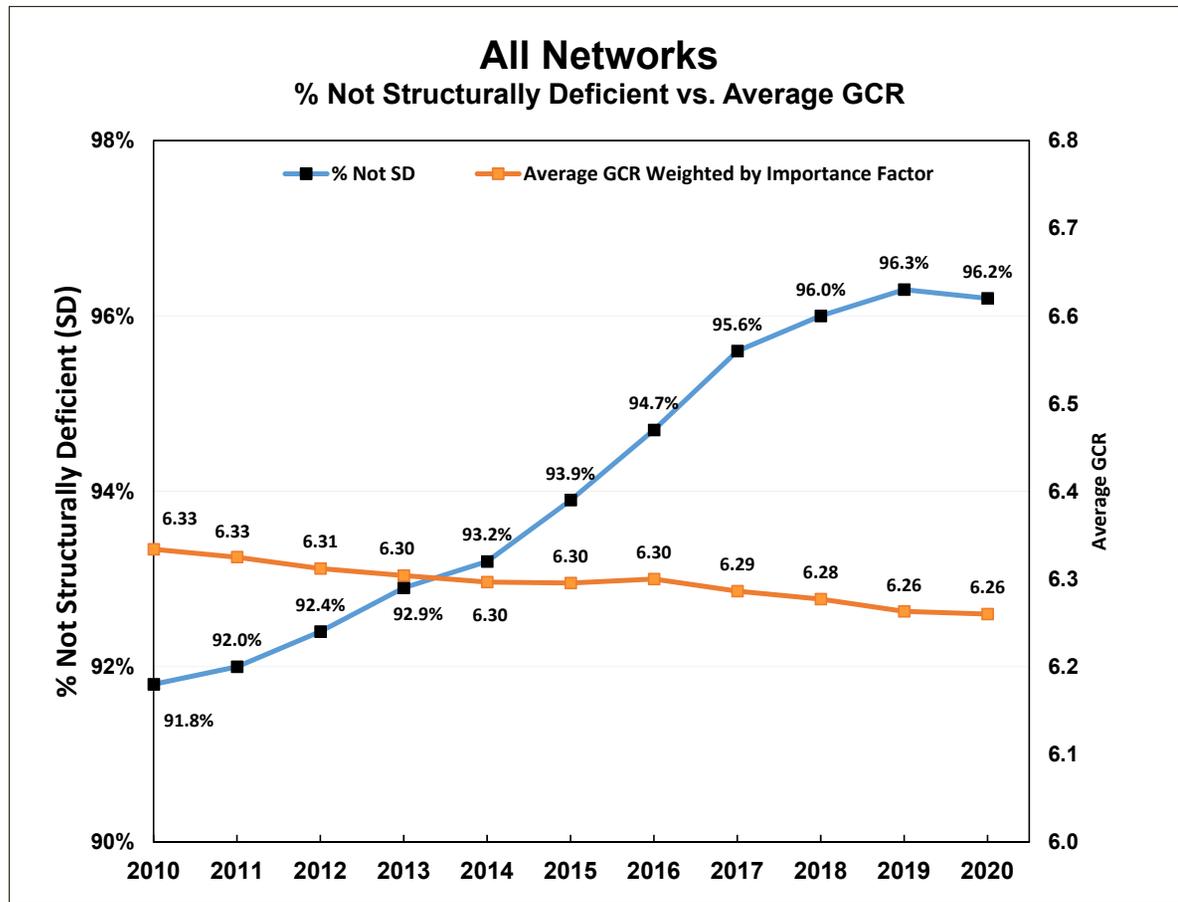


Structures – Long Term Sustainability

Analysis undertaken to define a sustainable solution

- Reviewed historical performance
- Cost to achieve the current performance targets?
 - Current policy: 99% for Interstate, 96% for Primary, and 94% for Secondary
 - Current policy: 95.5% NBI and All Structures Not Structurally Deficient (SD)
- Cost to maintain the current performance?
 - Current performance: 99% for Interstate, 97% for Primary, and 96% for Secondary
- Reviewed overall condition of the inventory
- Is the best strategy for improved long term performance preservation?
 - Reviewed: 75% preservation and 25% replacement
 - No posting on Interstate
- Evaluated different analysis time periods
 - Minimum 20 years

Overall Inventory Condition - Historical



Long Term Sustainability - Preservation Approach

- **Focus on overall inventory condition**
 - Not “Worst First”
- **Current performance levels - an additional \$122M/year to maintain**
 - “Worst First” cost higher than proactive preservation
- **Preservation approach maintains long term acceptable level of service**
 - Uses existing funding level
 - Consistent with industry best practices - Focus on balanced approach
- **Remaining SDs are safe**
 - Will continue to be monitored and programmed appropriately

Overall Funding Scenario

Preservation Activities and Investment Levels Evaluated (75%)

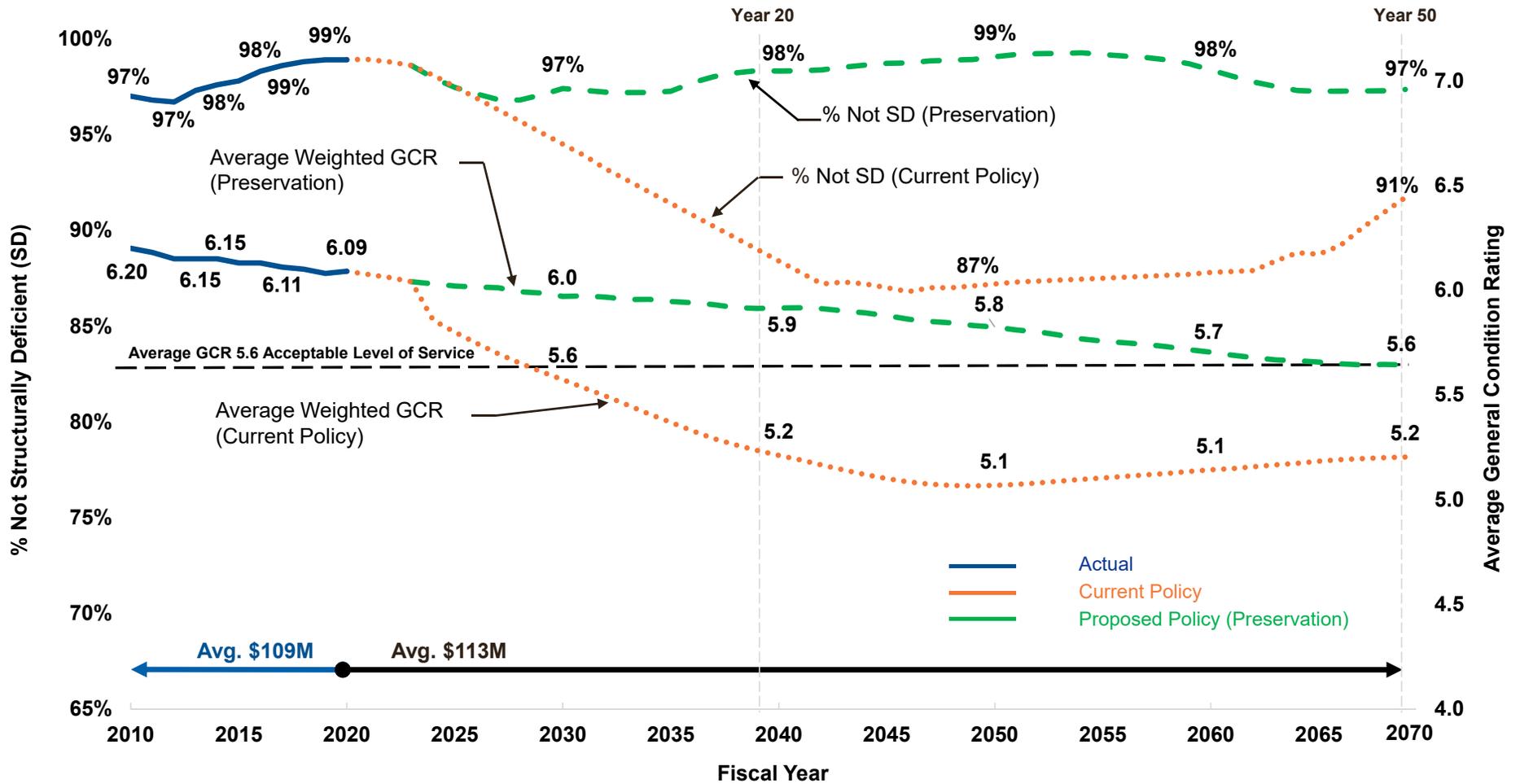
- **Deck repair and preservation (overlays & joints)**
- **Superstructure repair (beam ends) and preservation**
- **Substructure repair and preservation**
- **Culvert (liners)**

Replacement Activities (25%)

- **Components or whole structures**

Interstate Network – 50 Year Outlook

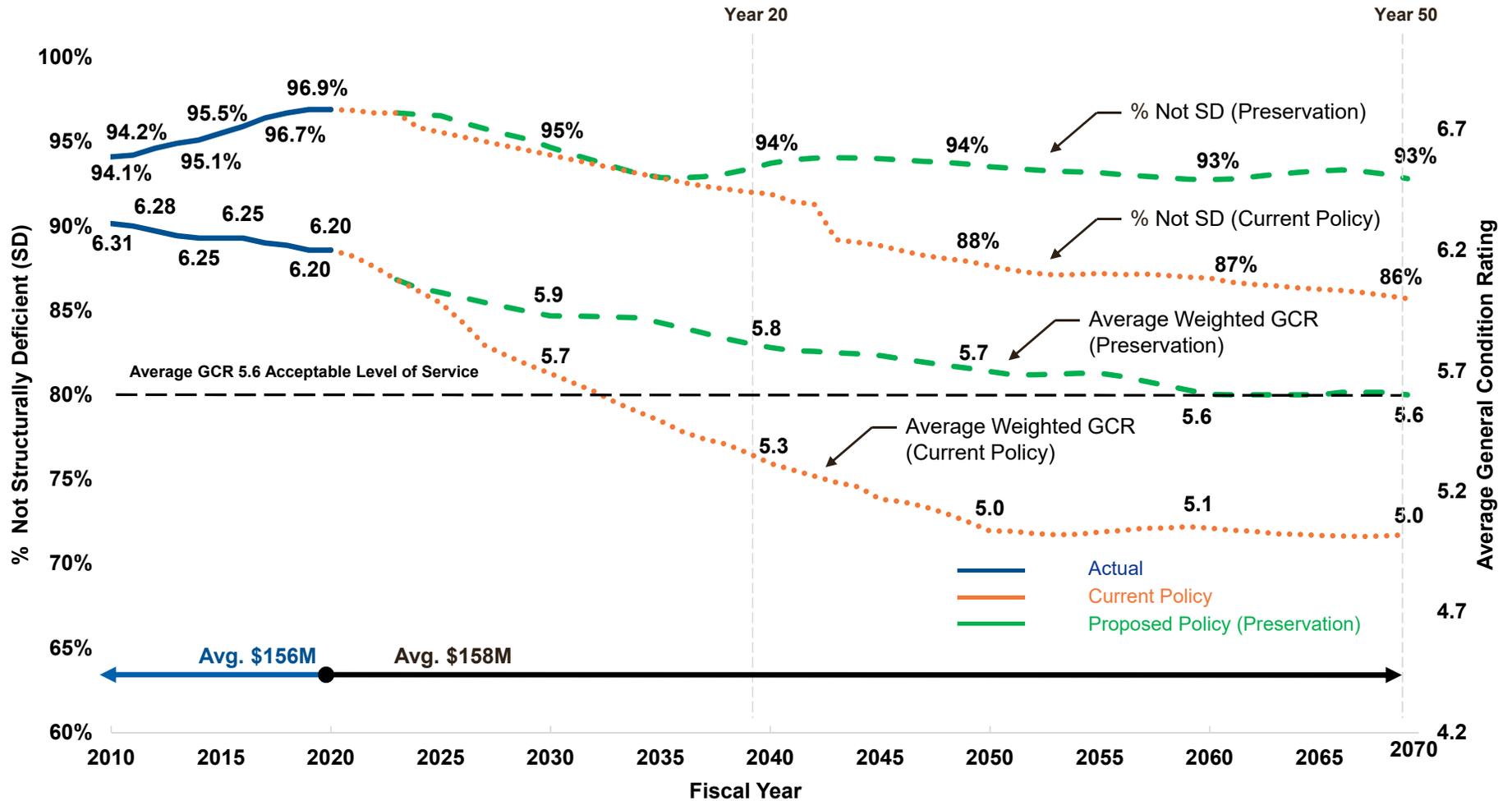
2,404 Structures (12%)
26M SF Deck Area (28%)



- All Future Expenditures are in 2019 Dollars
- Excludes Special Structures

Primary Network – 50 Year Outlook

5,808 Structures (27%)
40M SF Deck Area (42%)

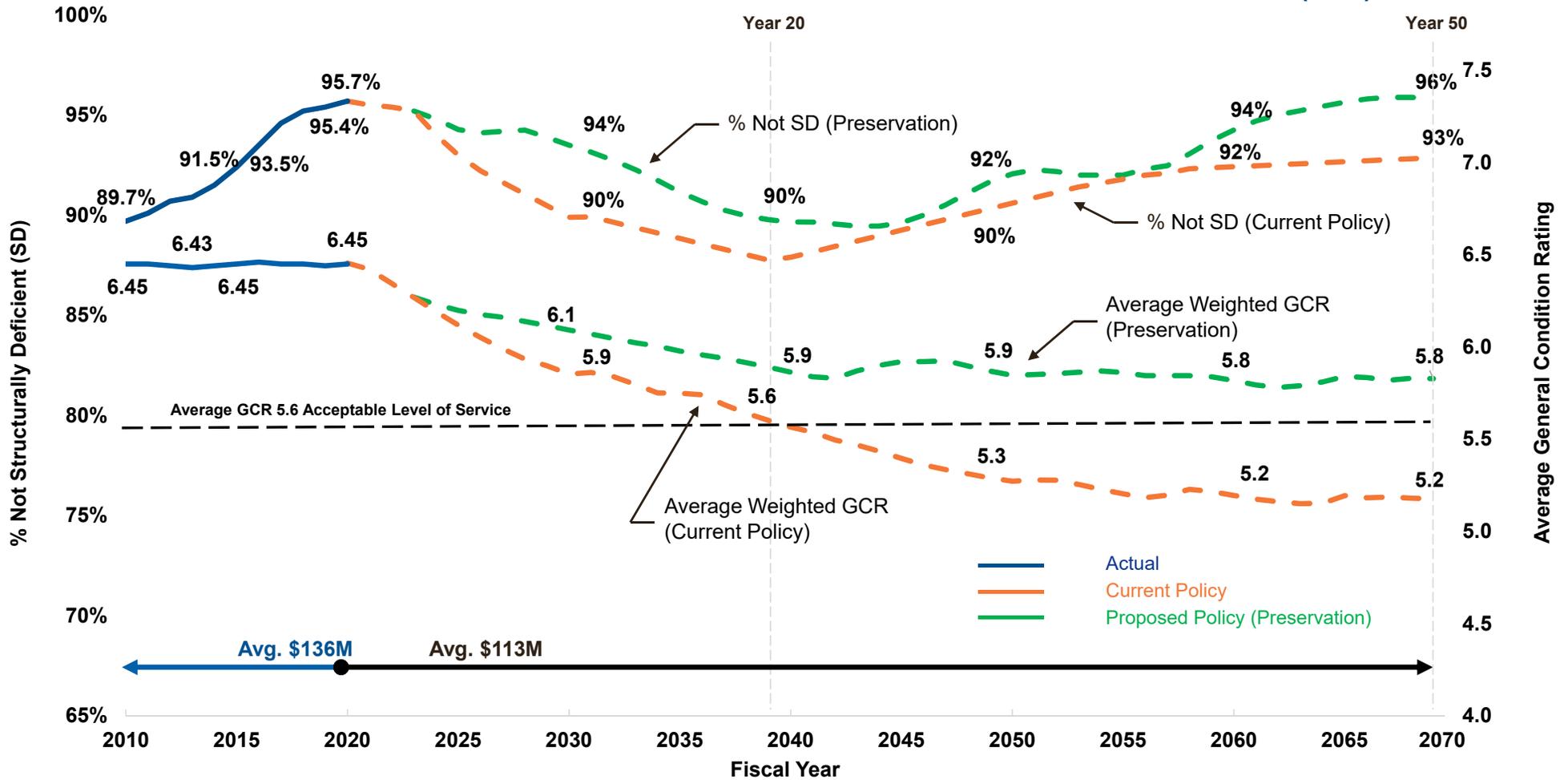


Virginia Department of Transportation

- All Future Expenditures are in 2019 Dollars
- Excludes Special Structures

Secondary Network – 50 Year Outlook

12,961 Structures (61%)
29M SF Deck Area (30%)



Virginia Department of Transportation

- All Future Expenditures are in 2019 Dollars
- Excludes Special Structures

Summary - Structures Investment Options

Current investment: \$384M per year, FY 2020

Targets, % Not-SD				Avg. Total Cost per Year, \$ Millions		
IS	PR	SC	All Systems Average GCR	Years 1-50		
				IS	PR	SC
Current Investment – Current Policy				161	222	123
99%	96%	94%	N/A	\$506		
				(\$122)		
Current Investment – Proposed Target				113	158	113
97% No Postings	93%	90%	Average GCR ≥ 5.6	\$384		
				 \$0		



Current Policy



Proposed Target

*All amounts in 2019 dollars

Thank you for continuing to be a key part in delivering quality projects!

