Infrastructure Condition (Pavements and Bridges) Briefing

June 20, 2017

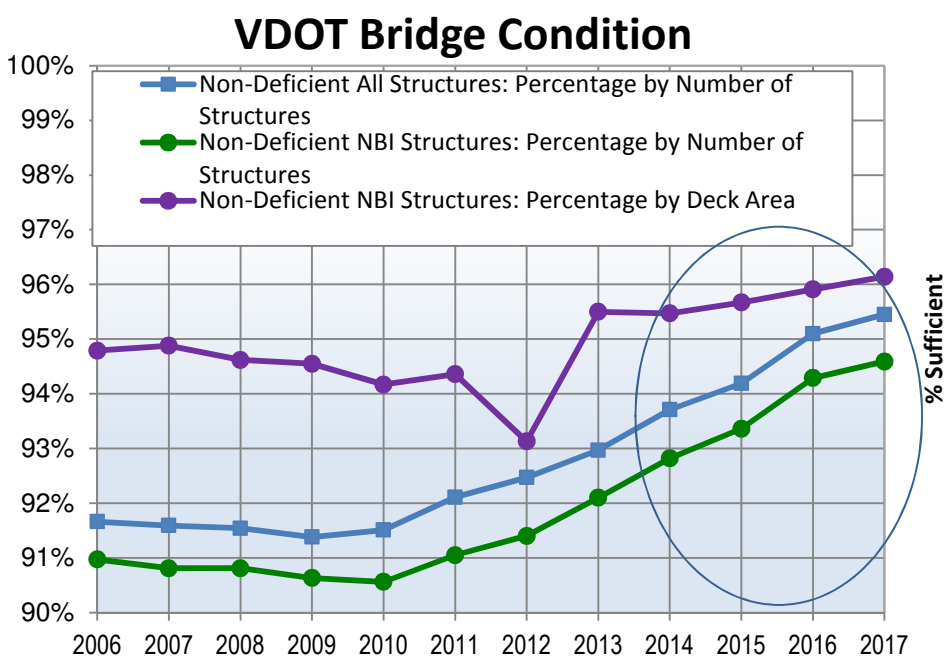
Garrett Moore, PE
Chief Engineer

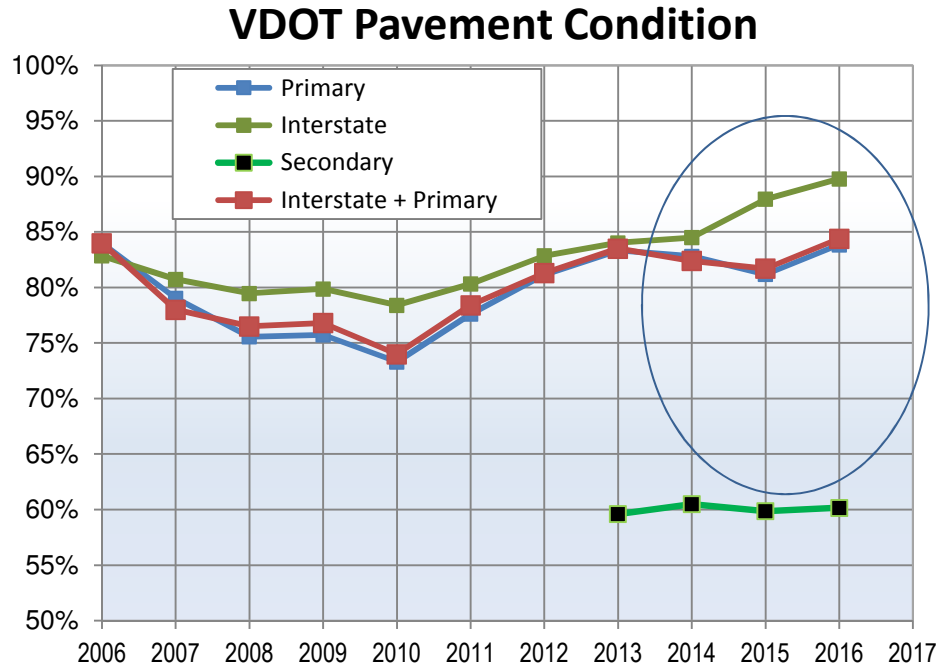
VDOT's Dashboard
The Numbers - All Projects
Maintenance and Construction

On Time: 92%			
(FY2017 Target: 77%)			
	Active	Completed	Total
R	16	12	28
Y	1	0	1
G	14	309	323
Total	31	321	352

On Budget: 95%			
(FY2017 Target: 85%)			
	Active	Completed	Total
R	2	9	11
Y	6	1	7
G	23	311	334
Total	31	321	352

VDOT's Dashboard
The Numbers - Core Assets' Condition
Pavement and Bridge





Existing Assets
Key Communication

Commonwealth Of Virginia Focus

- Impacts VDOT and Locality Maintained Assets

Core Assets – Pavements and Bridges

- Approximately *$400 B* – Full Replacement Costs
- Approximately *$12 B* – Costs to Update to Fair or better

Bridges

- Current funding levels – age to replacement *170 years on average*
- Bridge built prior to 2007 - expected 50 year service life
  - 94% of inventory (19,827 structures)
- Bridges built after 2007 - expected 75 year service life
  - 6% of our inventory (1,287 structures)
- Based on current funding replace approximately *86* bridges per year
  - Replaced at the end of service life, need to replace *305* bridges per year at a total cost of *$1.6B annually* for the next 40 years and *117* per year thereafter at a cost of *$610M annually*

Existing Assets
Key Communication - Continued

State of Good Repair Program focuses on pavement and bridge repair (replacement/rehabilitation)

- FY 2021 full implementation

$1.6 B - Maintenance and Operations Program

- Used for other assets and services besides core assets

More extensive repairs on existing assets will be required in the future

- 48 years - current average age of structures

Special Structures – 25 bridges and tunnels

- 30 year plan
- VTRANs

Core Assets
Pavement and Bridge Details

VDOT's Maintenance and Operations Program Fiscal Year 2018

- **Pavements - $500 M (all inclusive)**
- **Bridges - $200 M**
  - **Work with VDOT Bridge Crews and Contracts**

State of Good Repair

- **Initial funds - FY 2017**

State of Good Repair Program Progress				
Description	VDOT		Localities	
	Year 1	Year 2	Year 1	Year 2
Bridge (# of structures)	78*	55	54	
Pavement (Lane Miles)	248	111	48	50
*Original list 83 – work completed with other sources or closed				

Core Assets
Performance Targets
Pavement Condition - Statewide

Performance Measure Description	Current Policy (Percent Sufficient)*	Updated Policy (Percent Sufficient)	Current Performance 2016 (rounded) (Percent Sufficient)
Interstate	82% No Section CCI less than 30	82% ***No Section CCI less than 35***	90%
Primary	82%	82%	84%
Secondary	65%	65%	60%
Current Funding sustains Interstate and Primary condition			
Additional funding required to achieve secondary target			

***Sufficient means 'fair' or better**

NOTE: Objective is to *sustain or improve* current performance on the interstate and primary and achieve target on the secondary

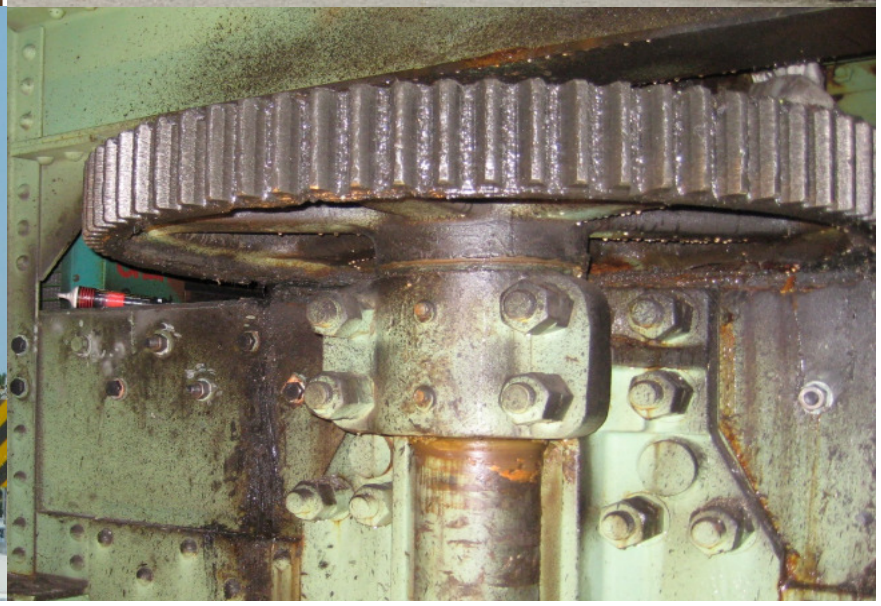
Core Assets
Performance Targets
Bridge Condition - Statewide

Performance Measure Description	Current Policy (Percentage Not Structurally Deficient)*	Updated Policy (Percentage Not Structurally Deficient)	Current Performance (VDOT and Localities) (Percentage Not Structurally Deficient)
Statewide	92%	***95.5%***	95.4%
Interstate	97%	***99%***	98.5%
Primary	94%	***96%***	96.4%
Secondary	89%	***94%***	94.7%
Updated Performance Goals are Predicted to be Attained with Current Funding by the End of FY18			

***Bridges that are not Structurally Deficient are in a Fair or Good Condition.**

NOTE: Objective is to *sustain or improve* current performance on the interstate and primary and achieve target on the secondary

Special Structures



Special Structures
Varina Enon Bridge

Special Structures

Large and/or complex and play a critical role in the function of the transportation network

One or more of the following traits:

-High traffic in conjunction with a long detour

-Critical and non-redundant link for communities with significant population

-Structural complexity

-High maintenance and/or operational demands

	STRUCTURE		ROUTE	YEAR BUILT (AGE)	2018-2027	2028-2037	2038-2047	TOTAL
TUNNELS	BRISTOL	Big Walker Mountain	I-77	1972 (45)	$12 M	$2 M	$5 M	$20 M
	BRISTOL	East River Mountain	I-77	1974 (43)	$13 M	$3 M	$6 M	$21 M
	HAMPTON ROADS	Hampton Roads Bridge Tunnel	I-64	WBL - 1958 (59) EBL - 1974 (43)	$86 M	$51 M	$113 M	$250 M
	HAMPTON ROADS	Monitor Merrimac Memorial Bridge Tunnel	I-664	1992 (25)	$142 M	$46 M	$110 M	$298 M
	HAMPTON ROADS	Elizabeth River Downtown Tunnel			*Maintained by Elizabeth River Crossings*			$0 M
	HAMPTON ROADS	Elizabeth River Midtown Tunnel			*Maintained by Elizabeth River Crossings*			$0 M
	NORTHERN VIRGINIA	Rosslyn Tunnel	I-66	1983 (34)	$4 M	$2 M	$2 M	$8 M
				Subtotal	**$257 M**	**$103 M**	**$236 M**	**$597 M**
MOVABLE BRIDGES	RICHMOND	Benjamin Harrison	Rte 156	1967 (50)	$56 M	$3 M	$4 M	$63 M
	HAMPTON ROADS	Chincoteague	Rte 175	2010 (7)	$1 M	$2 M	$18 M	$21 M
	HAMPTON ROADS	High Rise	I-64	1969 (48)	$5 M	$2 M	$0 M	$7 M
	HAMPTON ROADS	Berkley	I-264	WBL - 1952 (65) EBL - 1990 (27)	$78 M	$20 M	$18 M	$116 M
	HAMPTON ROADS	Coleman	Rte 175	1996 (21)	$9 M	$11 M	$14 M	$33 M
	HAMPTON ROADS	James River	Rte 17	1980 (37)	$55 M	$6 M	$25 M	$86 M
	FREDERICKSBURG	Eltham	Rte 30/33	2007 (10)	$12 M	$1 M	$9 M	$22 M
	FREDERICKSBURG	Gwynn's Island	Rte 223	1938 (79)	$18 M	$1 M	$40 M	$59 M
				Subtotal	**$234 M**	**$45 M**	**$127 M**	**$406 M**
COMPLEX FIXED SPAN STRUCTURES	BRISTOL	460 Connector	460	2017 (new)	$1 M	$0 M	$3 M	$4 M
	SALEM	Smart Road Bridge		2001 (16)	$1 M	$1 M	$2 M	$4 M
	RICHMOND	Varina Enon	I-295	1990 (27)	$69 M	$20 M	$11 M	$99 M
	RICHMOND	895/Pocahontas Parkway	895		*Maintained by Transurban*			$0 M
	HAMPTON ROADS	HRBT Approaches	I-64	WBL 1957 (60) EBL 1974 (43)	$79 M	$490 M	$15 M	$584 M
	HAMPTON ROADS	Willoughby Bay	I-64	1972 (45)	$33 M	$2 M	$0 M	$35 M
	HAMPTON ROADS	MMMBT approaches	I-664	1992 (25)	$36 M	$48 M	$20 M	$104 M
	HAMPTON ROADS	James River bridge approaches	Rte 17	1980 (37)	$61 M	$38 M	$23 M	$122 M
	HAMPTON ROADS	I-64 High Rise bridge approaches	I-64	1969 (48)	$22 M	$13 M	$0 M	$35 M
	FREDERICKSBURG	Norris bridge	Rte 3	1957 (60)	$27 M	$258 M	$12 M	$297 M
				Subtotal	**$329 M**	**$869 M**	**$85 M**	**$1,283 M**
				Total (rounded to $100M)	**$0.8 B**	**$1.0 B**	**$0.5 B**	**$2.3 B**

- 2017 Dollars
- Includes $40M Replacement Costs for Gwynn's Island
- High Rise Replacement Costs not Included (already funded – HRTC)

Core Asset Focus
Risks

Core Assets – Pavements and Bridges

- Only resourcing to current performance targets and maintaining
  - Heavier work not addressed – Special Structures
    - VTRANS
    - Working on fracture critical structures with available resources
  - Need to focus more on proactive preventive maintenance to reduce the needs of heavier future maintenance
    - Shifting funds to proactive preventive maintenance where available
  - Increase in traffic management costs

Other Assets and Services Needs

- Examples
  - Concrete Repair
  - Soundwalls
  - Mowing
  - Operational Investment

Financial

- Federal fund uncertainty
- Unfunded mandates
  - Piloting sponsorships and resolution for naming rights

Investment, Priorities and Focus

Automobile and Technology Industries – Number 1 attraction factor for autonomous vehicles is good conditions of bridges, pavements and pavement markings

In addition, it is fundamental to the Virginia Economy, mobility of its citizens and quality of life

Infrastructure Condition Briefing

June 20, 2017

Garrett Moore, PE
Chief Engineer