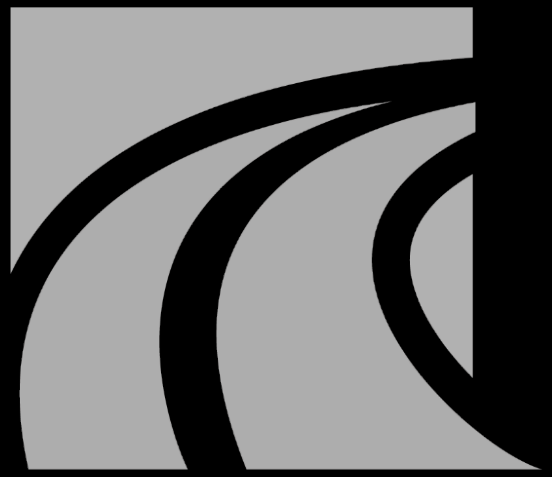

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THE REGIONAL COMMISSION

2020 Richmond Regional Structural Inventory and Assessment Report

RRTPO
Technical Advisory Committee Meeting
June 9, 2020

Presentation by:

Sulabh Aryal, AICP

Transportation Planning Manager

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Introduction

- RRTPO began tracking of the regional structures since 2014.
- The 2020 Richmond Regional Structural Inventory Assessment Report – update to the 2015 Report.
- VDOT database of structures by construction district used as the primary source of data for the document. Uses data from VDOT dashboard (January 15, 2020).
- Commonwealth's State of Good Repair (SGR) Prioritization Process Methodology for replacement and rehabilitation of structures.
- Prioritized List: VDOT-owned and locality-owned structures in the Richmond region.
- Structures with poor conditions will be fed into ConnectRVA 2045 plan as bridge replacement/rehabilitation needs within the SGR funding pot.

Structures Inventory

- Bridges, Culverts and Tunnels.
- List all structures maintained by VDOT, other jurisdictions, public agencies and private entities. Exceptions are Federal Bridges.
- All bridges regardless of their length.
- Culverts having an opening greater than 36 square feet.
- Overpasses, flyovers and at-grade ramps are also considered bridges.
- A bridge may have more than one structure. For example eastbound and westbound or northbound and southbound parts of a bridge could be two structures (Mayo Bridge, Route 288).

Regional Structures Summary

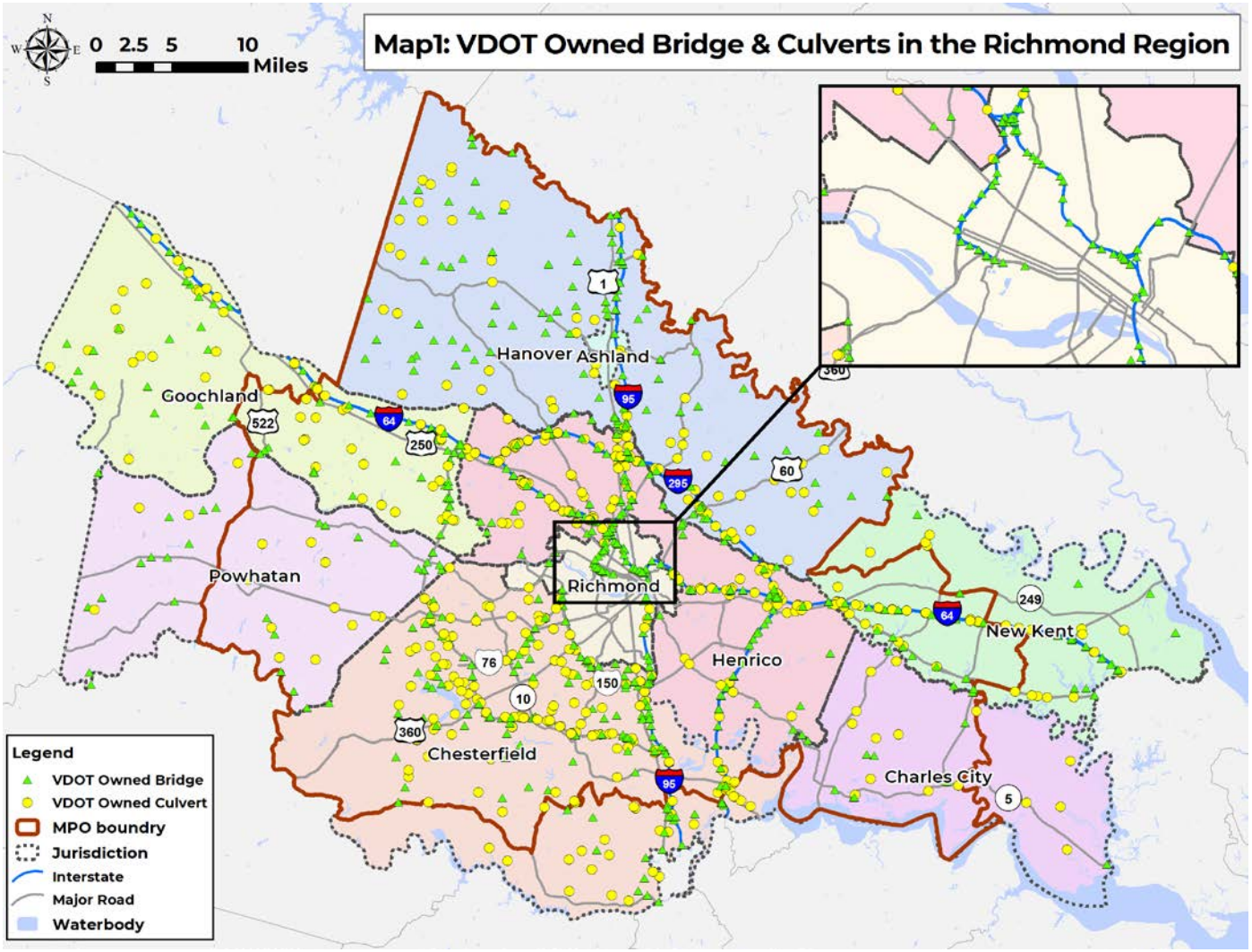
Total Structures by Type and Jurisdiction

Jurisdiction	Bridge	Culvert	Total
Ashland	2	3	5
Charles City	13	16	29
Chesterfield	193	167	360
Goochland	67	61	128
Hanover	140	66	206
Henrico	166	199	365
New Kent	47	51	98
Powhatan	32	15	47
Richmond	158	32	190
Region Total	**818**	**610**	**1,428**

Structures by Ownership

Ownership	Bridge	Culvert	Total Structrues	Percentage
Chesterfield County	0	1	1	0.1%
City of Richmond	55	25	80	5.6%
Globalvia	23	11	34	2.4%
Henrico County	16	54	70	4.9%
Railroad (CSX)	2	0	2	0.1%
RMTA	31	2	33	2.3%
Town of Ashland	0	1	1	0.1%
VDOT	691	516	1207	84.5%
Grand Total	**818**	**610**	**1428**	**100.0%**

Regional Structures Summary



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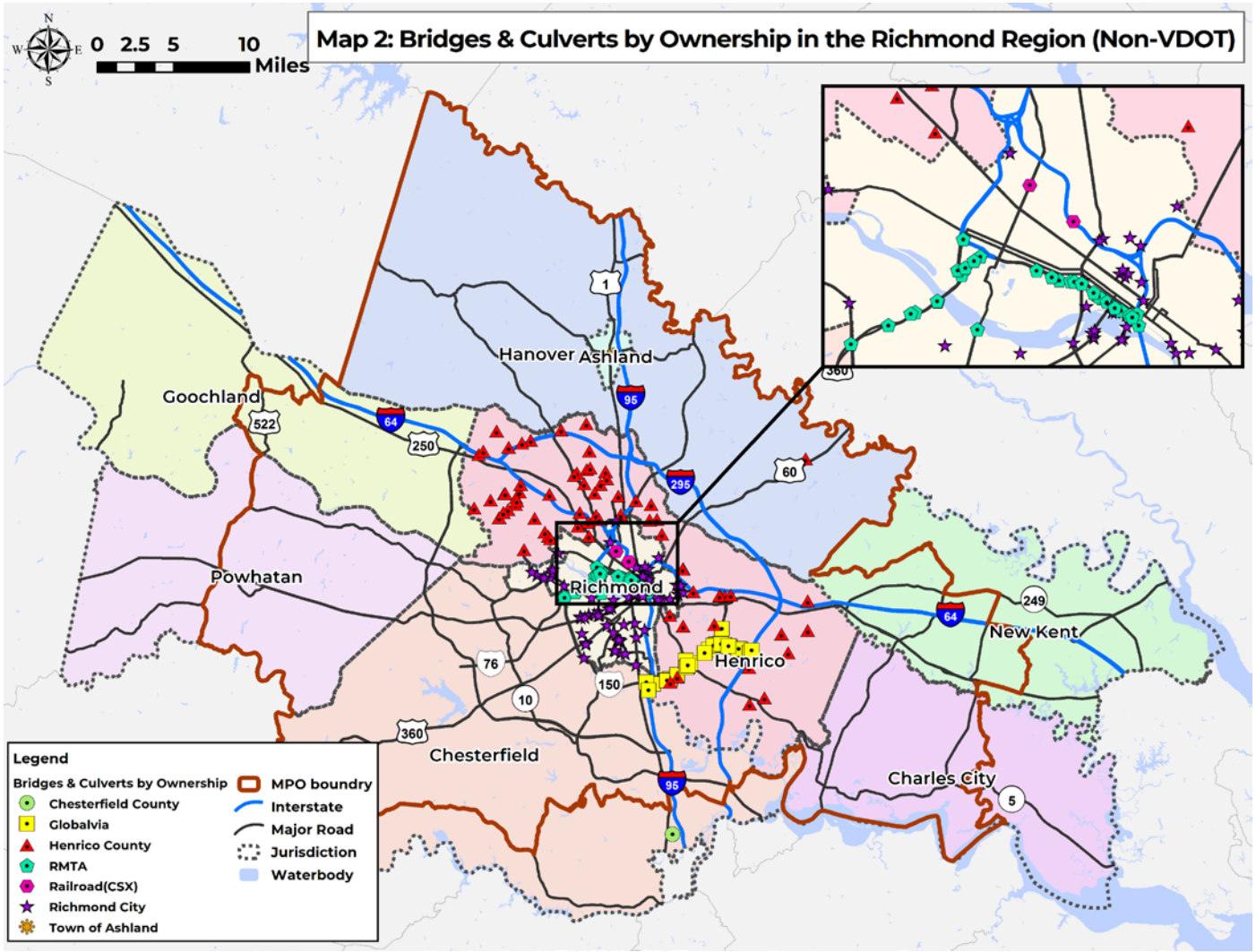
Regional Structures Summary



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Structure Conditions

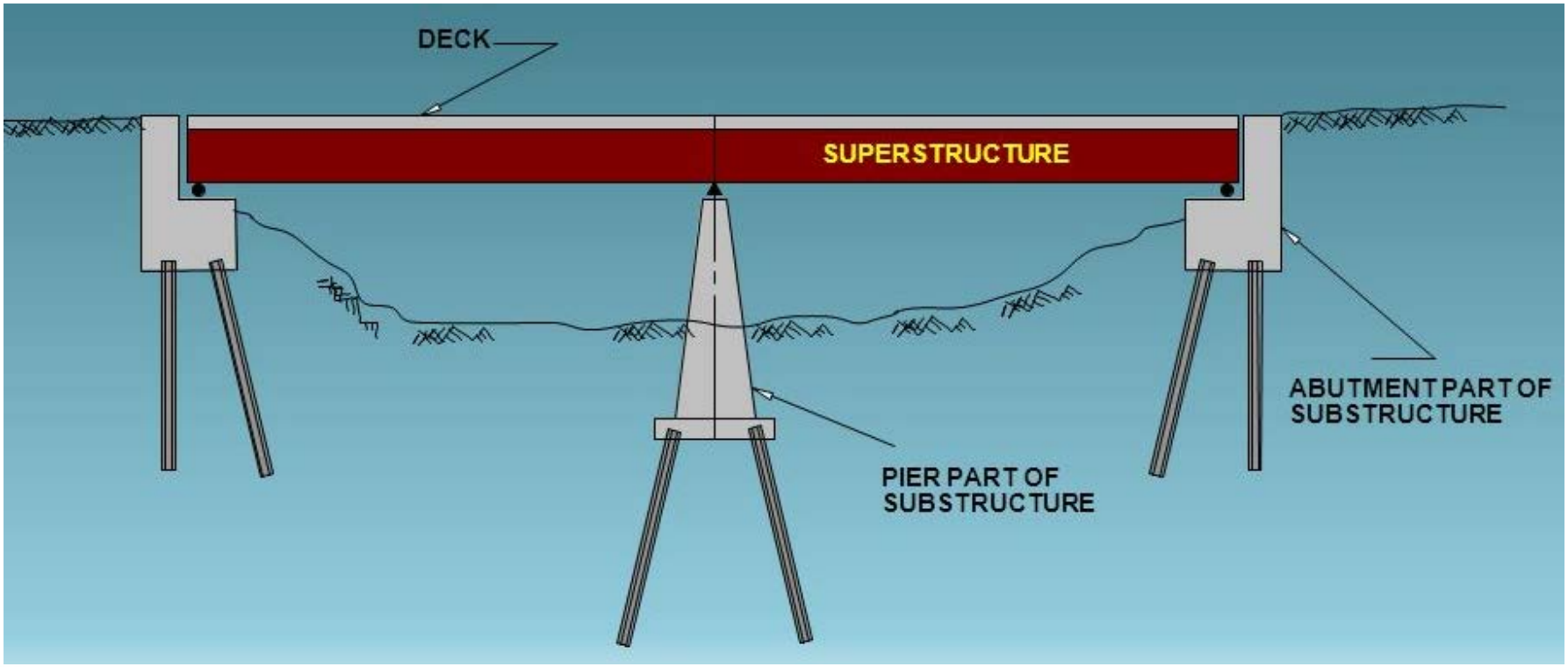
Inspection and Rating

- The Virginia Department of Transportation (VDOT) is responsible for the inventory and inspection of all bridges and culverts across Virginia.
- Inspected in accordance to the National Bridge Inspection Standards (NBIS).
- Inspection intervals no greater than 2 years for bridges and 4 years for large culverts, with more frequent intervals for poor structures

Structure Conditions

Bridge Components

- Deck
- Superstructure
- Substructures



Structure Conditions

General Condition Rating (GCR)

Condition		Code	Description
		N	NOT APPLICABLE
GOOD	Excellent	9	EXCELLENT CONDITION
	Very Good	8	VERY GOOD CONDITION: No problems noted.
	Good	7	GOOD CONDITION: Some minor problems.
FAIR	Satisfactory	6	SATISFACTORY CONDITION: Structural components show some minor deterioration.
	Fair	5	FAIR CONDITION: All primary structural elements are sound but may have some minor section loss, cracking, spalling or scour
POOR (SD)	Poor	4	POOR CONDITION: Advanced section loss, deterioration, spalling or scour.
	Serious	3	SERIOUS CONDITION: Loss of section, deterioration, spalling or scour have seriously affected primary structural components. Local failures are possible. Fatigue cracks in steel or shear cracks in concrete may be present.
	Critical	2	CRITICAL CONDITION: Advanced deterioration of primary structural elements. Fatigue cracks in steel or shear cracks in concrete may be present or scour may have removed substructure support. Unless closely monitored it may be necessary to close the bridge until corrective action is taken.
	Imminent Failure	1	"IMMINENT" FAILURE CONDITION: Major deterioration or section loss present in critical structural components or obvious vertical or horizontal movement affecting structure stability. Bridge is closed to traffic but corrective action may put back in light service.
	Failed	0	FAILED CONDITION: Out of service - beyond corrective action.

Structure Conditions

Structurally Deficient Bridges

- Bridges are considered structurally deficient if they have been restricted to light vehicles, closed to traffic or require rehabilitation.
- Structurally deficient means there are elements of the bridge that need to be monitored and/or repaired.
- Structurally deficient bridges are often posted with reduced weight limits that restrict the gross weight of vehicles using the bridges.
- The fact that a bridge is "structurally deficient" does not imply that it is likely to collapse or that it is unsafe.
- GCR 4 or less

Structure Conditions

Structurally Deficient Bridges

By Location

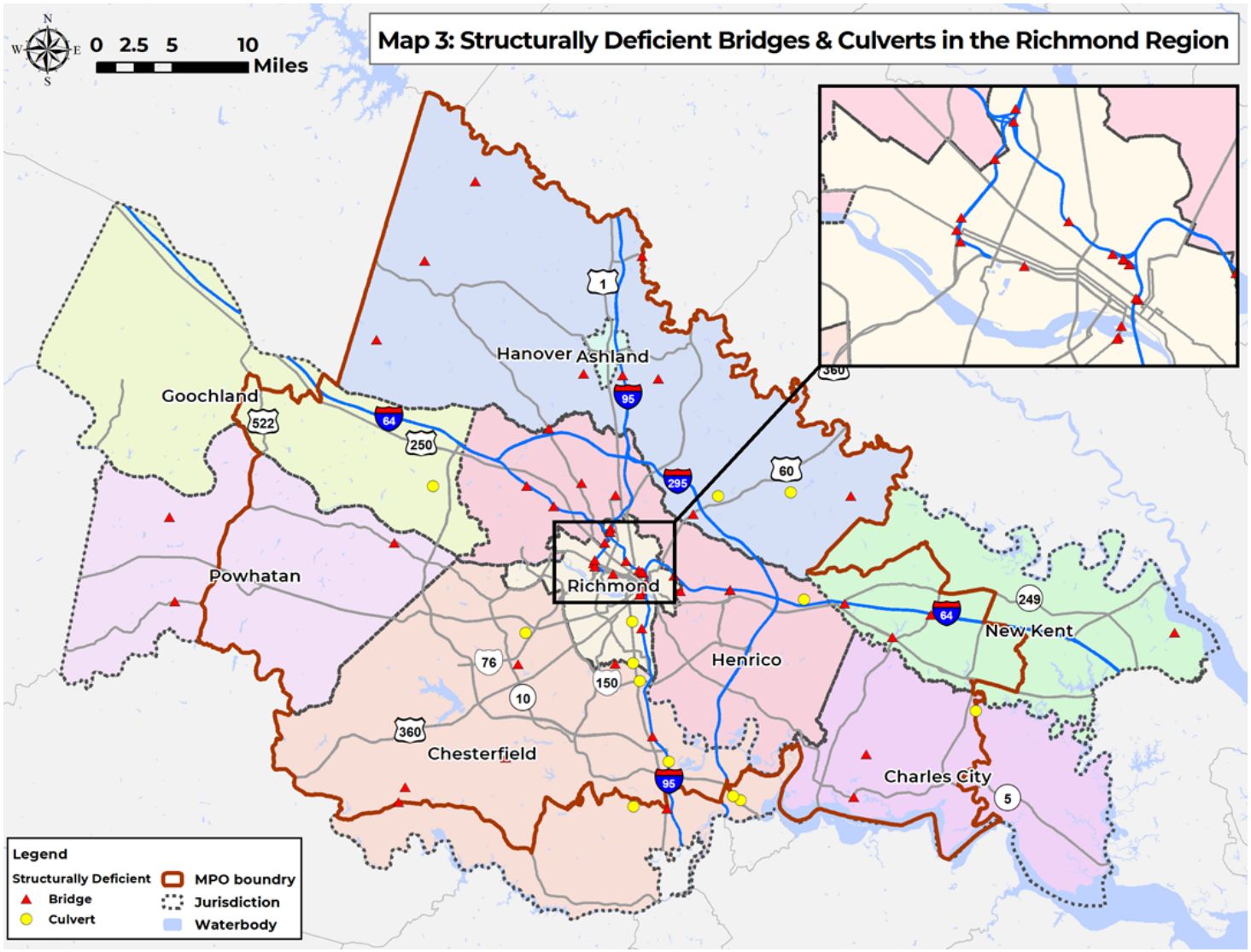
Jurisdiction	Structurally Deficient	Total Structures	Percentage
Ashland	0	5	0.0%
Charles City	3	29	10.3%
Chesterfield	13	360	3.6%
Goochland	1	128	0.8%
Hanover	12	206	5.8%
Henrico	9	365	2.5%
New Kent	4	98	4.1%
Powhatan	3	47	6.4%
Richmond	20	190	10.5%
Grand Total	**65**	**1428**	**4.6%**

By Ownership

Ownership	Structurally Deficient	Total Structures	Percentage
Chesterfield County	0	1	0.0%
City of Richmond	8	80	10.0%
Globalvia	0	34	0.0%
Henrico County	3	70	4.3%
Railroad (CSX)	1	2	50.0%
RMTA	0	33	0.0%
Town of Ashland	0	1	0.0%
VDOT	53	1,207	4.4%
Grand Total	**65**	**1428**	**4.6%**

- **65 Structurally Deficient Structures (4.6%) compared to 110 (7.8%) in 2015**
- **All SD Structures listed in ConnectRVA 2045 Needs Inventory**

Structure Conditions



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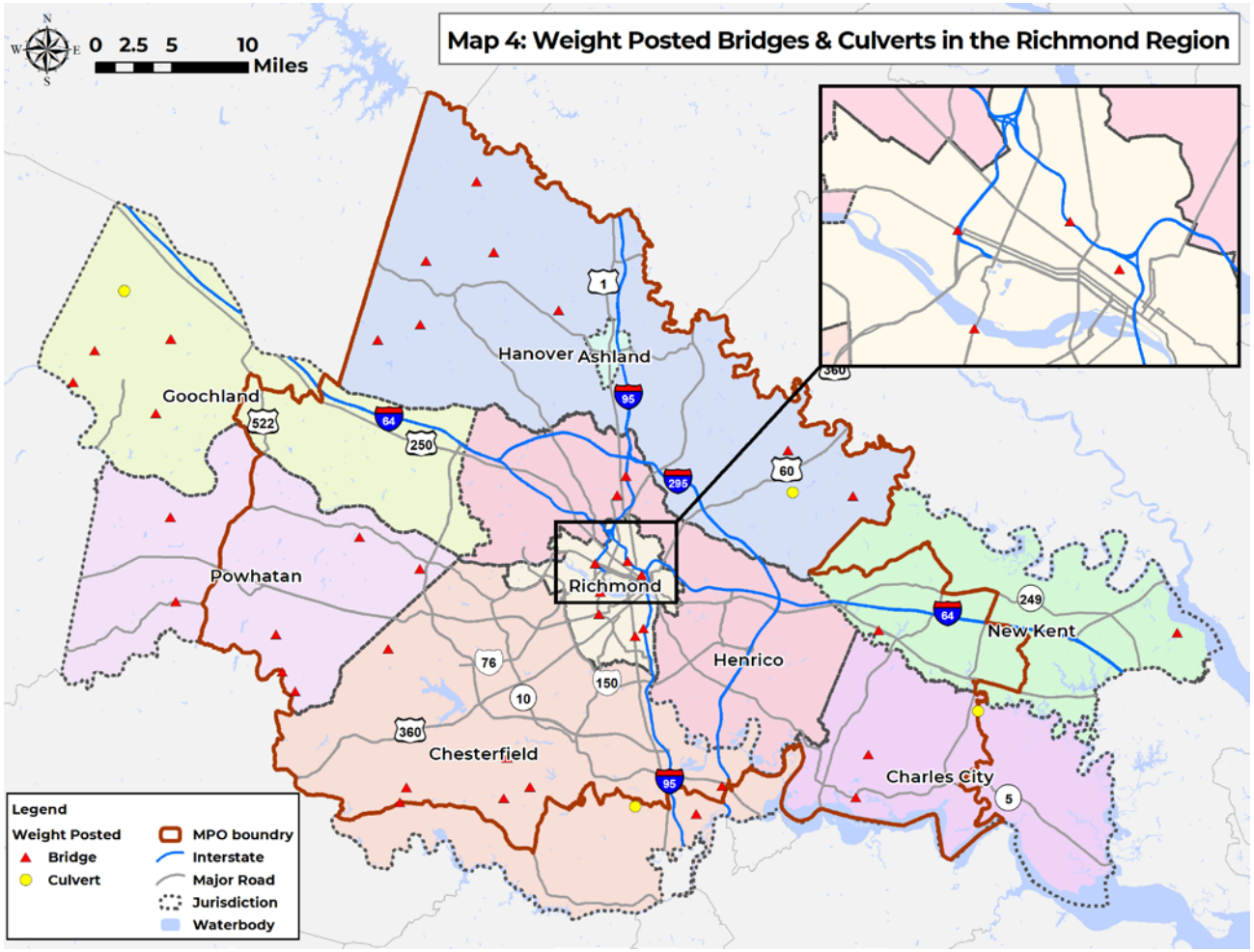
Structure Conditions

Weight Posted Structures



Jurisdiction	Weight-Posted Bridges & Culverts
Charles City	3
Chesterfield	9
Goochland	5
Hanover	9
Henrico	2
New Kent	2
Powhatan	7
Richmond	7
Regional Total	**44**

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Next Steps

- Work with VDOT District and Central Office Bridge Division to understand and document Commonwealth's State of Good Repair (SGR) Prioritization Process Methodology for replacement and rehabilitation of structures.
- Prioritized List: VDOT-owned and locality-owned structures in the Richmond region (FY 21)- Connect Inventory with Funding.
- Develop Jurisdictional Profile (Inventory and Mapping)
- Finalize the report for TAC and RRTPO Policy Board Approval.

Questions?

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