

Pavement Performance Measurement in Hampton Roads

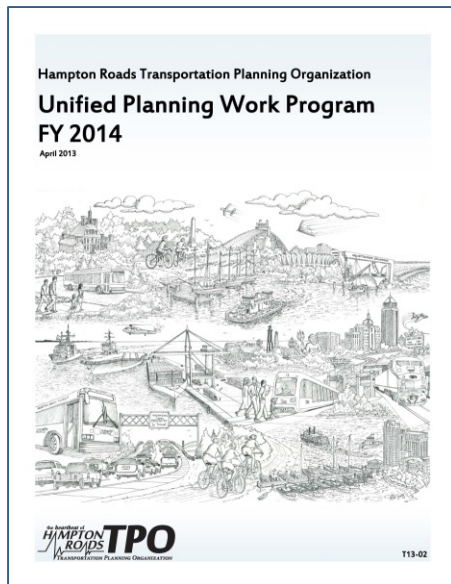
Presented to TTAC

June 4, 2014

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Impetus for Measuring Pavement Performance



- Post-2008 federal **stimulus**
- 2011 increase in **lane closures**
- **MAP-21**'s focus on Performance Management

Pavement Performance Measurement

- A. Maintenance Funding
- B. Pavement Data

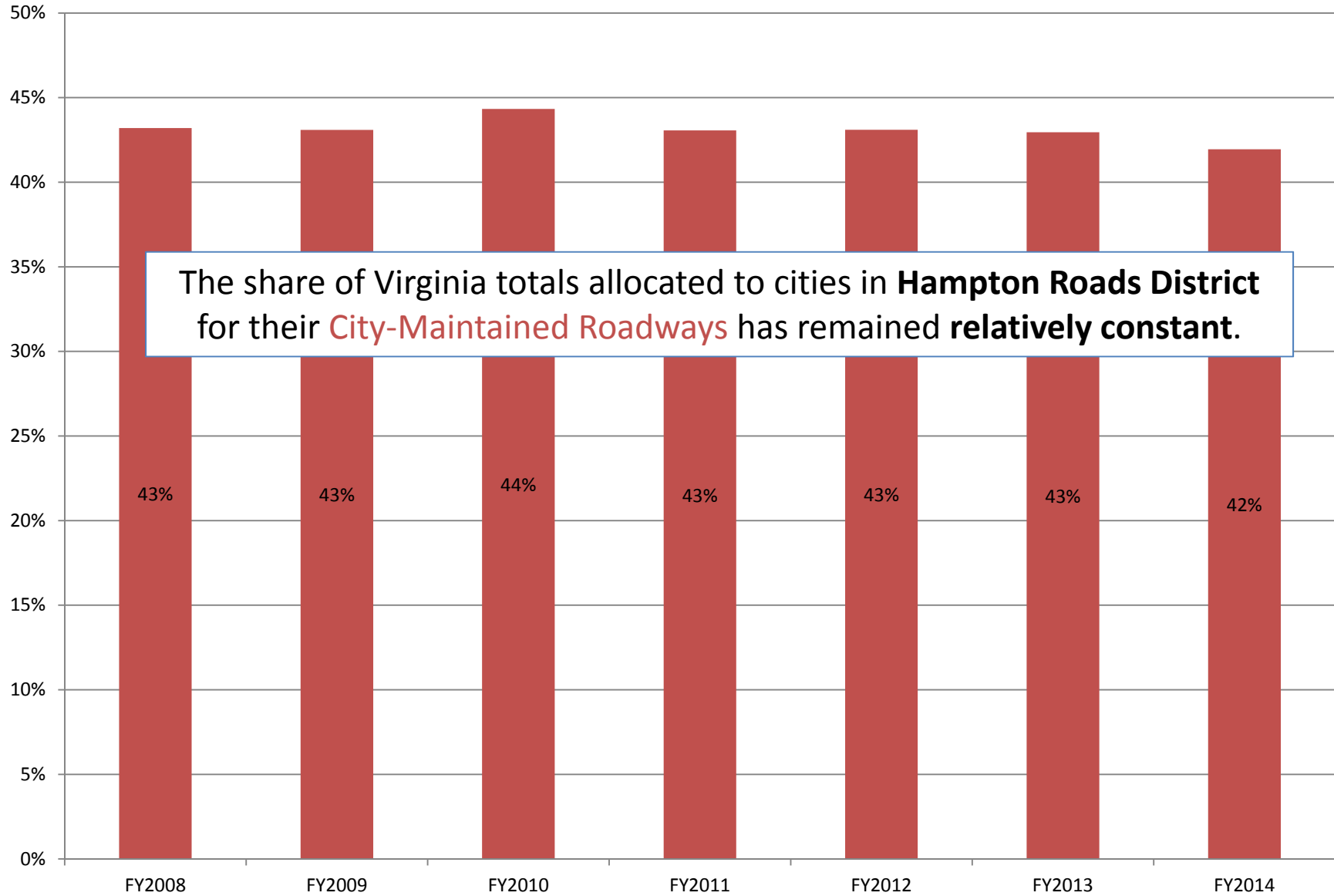
Note: Re-paving represents only a portion of maintenance funding.

VDOT's "Hampton Roads District"

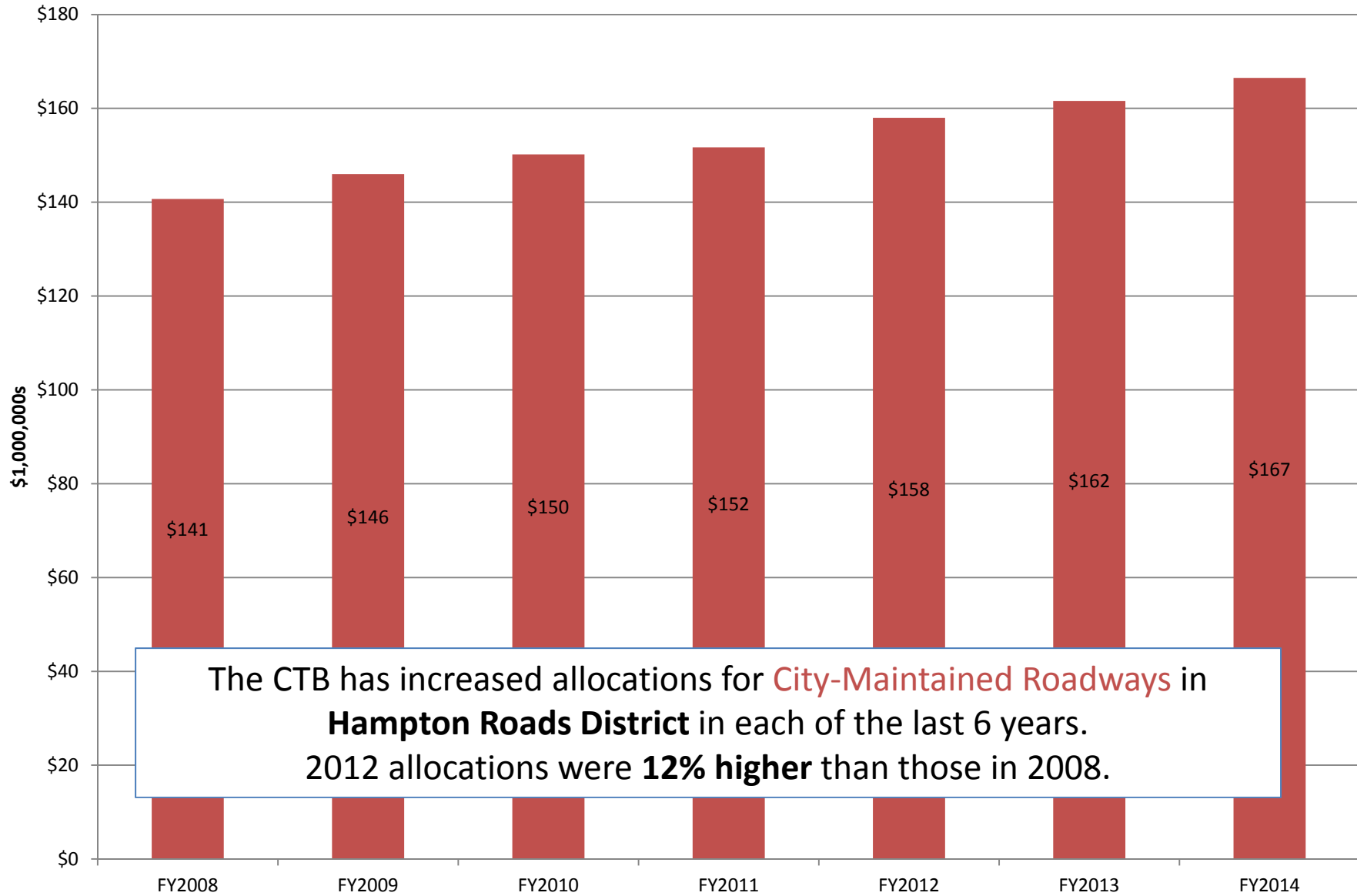


- VDOT **directly** maintains “VDOT-Maintained Roadways” and **indirectly** maintains “City-Maintained Roadways”.
 - 11 Cities in HR District:
 - The nine cities served by HRTPO
 - Franklin, Emporia

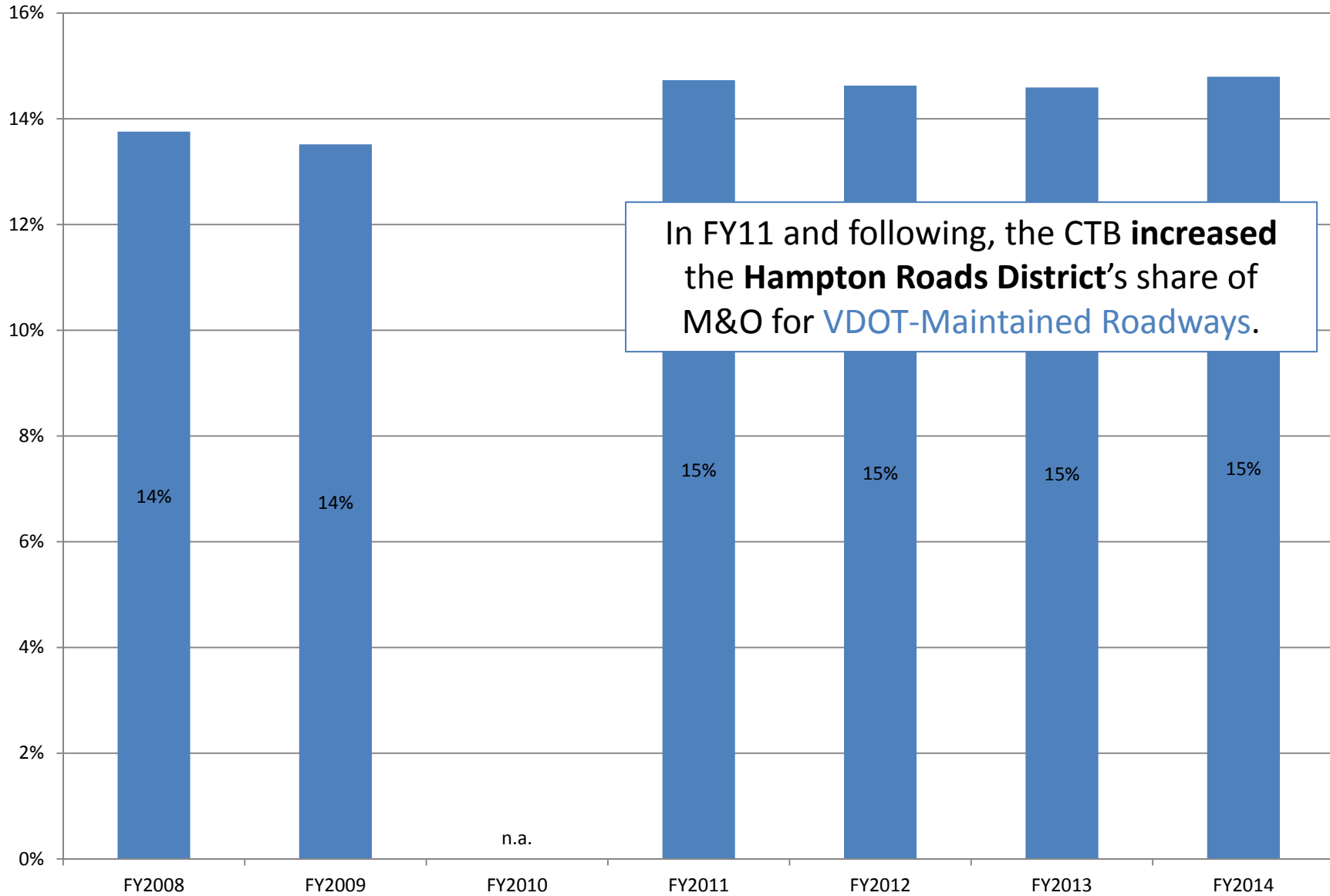
VDOT Allocations to "Maintenance Payments to Localities" in Hampton Roads District, Share of Virginia Total



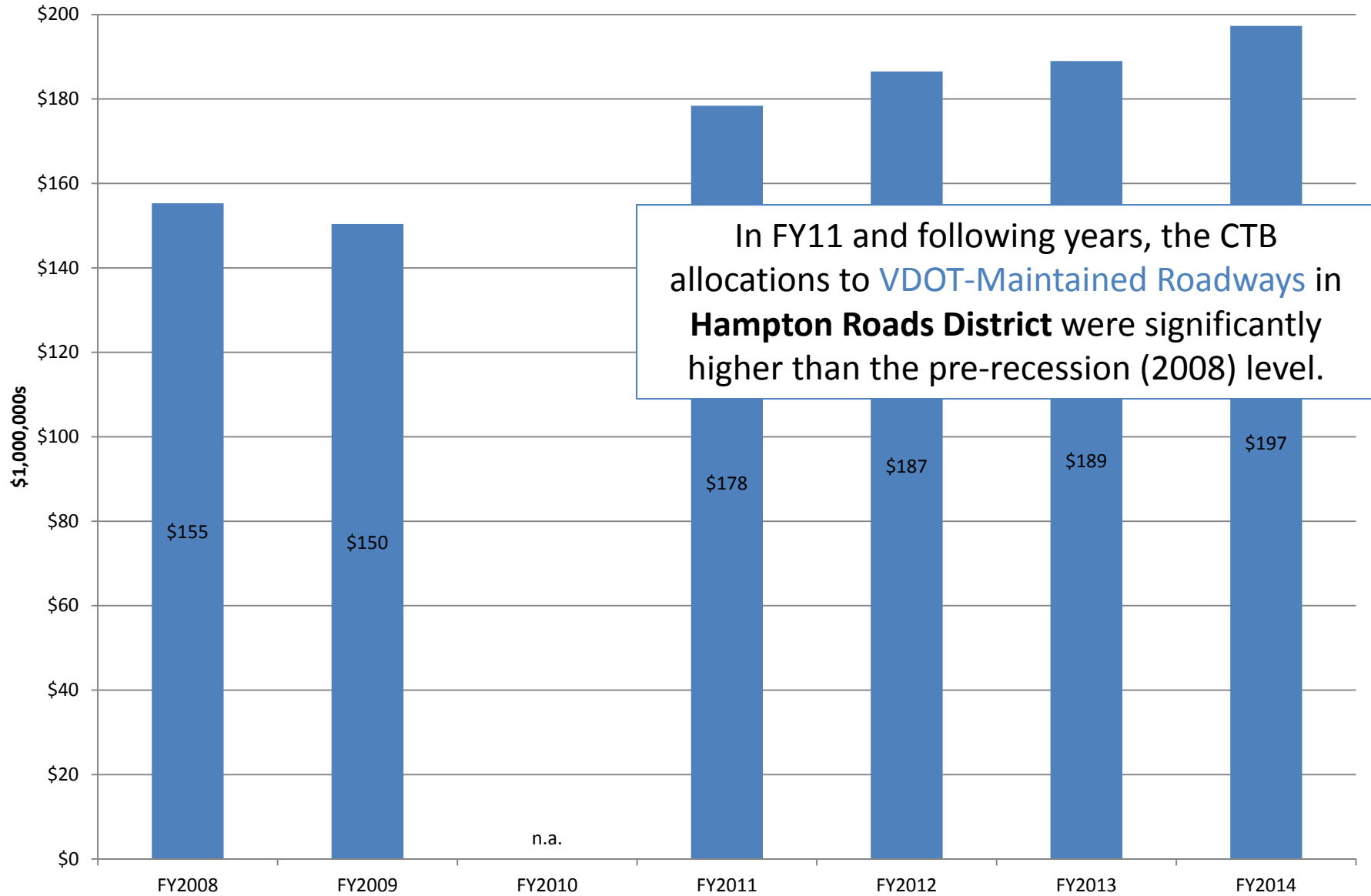
VDOT Allocations to "Maintenance Payments to Localities" in Hampton Roads District, \$1,000,000s



VDOT Allocations to "Maintenance and Operations Program for VDOT" in Hampton Roads District, Share of Virginia Total



VDOT Allocations to "Maintenance and Operations Program for VDOT" in Hampton Roads District, \$1,000,000s



Maintenance Funding- Summary

- Hampton Roads District

- City-Maintained Roadways

- 2012 allocations were **12% higher** than those in 2008.

- VDOT-Maintained Roadways

- 2012 allocations were **21% higher** than those in 2008.

Note: Re-paving is **only a portion** of maintenance.

B. Pavement Data

2 Ways to Measure Pavement Performance

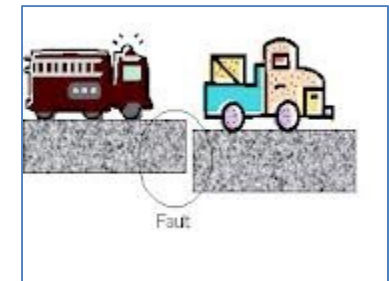
- Cracking of pavements is measured using **Critical Condition Index (CCI)**.

- Software interprets video images.
- VDOT considers $CCI \geq 60$ as sufficient.
- VDOT target- interstate and primary CCI: **82%** sufficiency
- This measure is called **“Pavement Condition”** below.



- Roughness of all pavements is measured using **International Roughness Index (IRI)**.

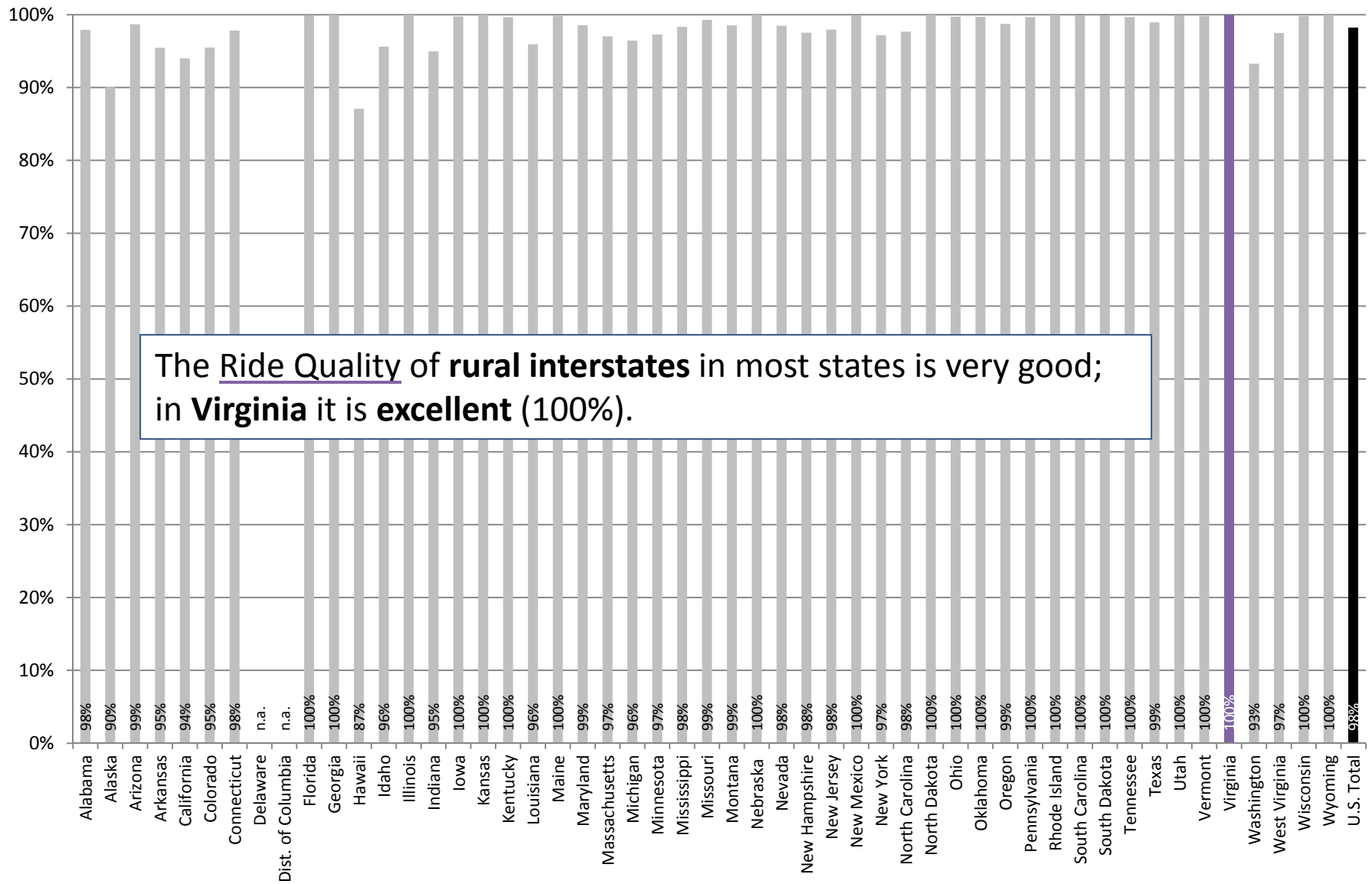
- Physical measurement w/ units of slope (in/mi).
- VDOT considers $IRI < 140$ as sufficient (FHWA: ≤ 170)
- VDOT target- interstate and primary IRI: **85%** sufficiency
- This measure is called **“Ride Quality”** below.



B. Pavement Data

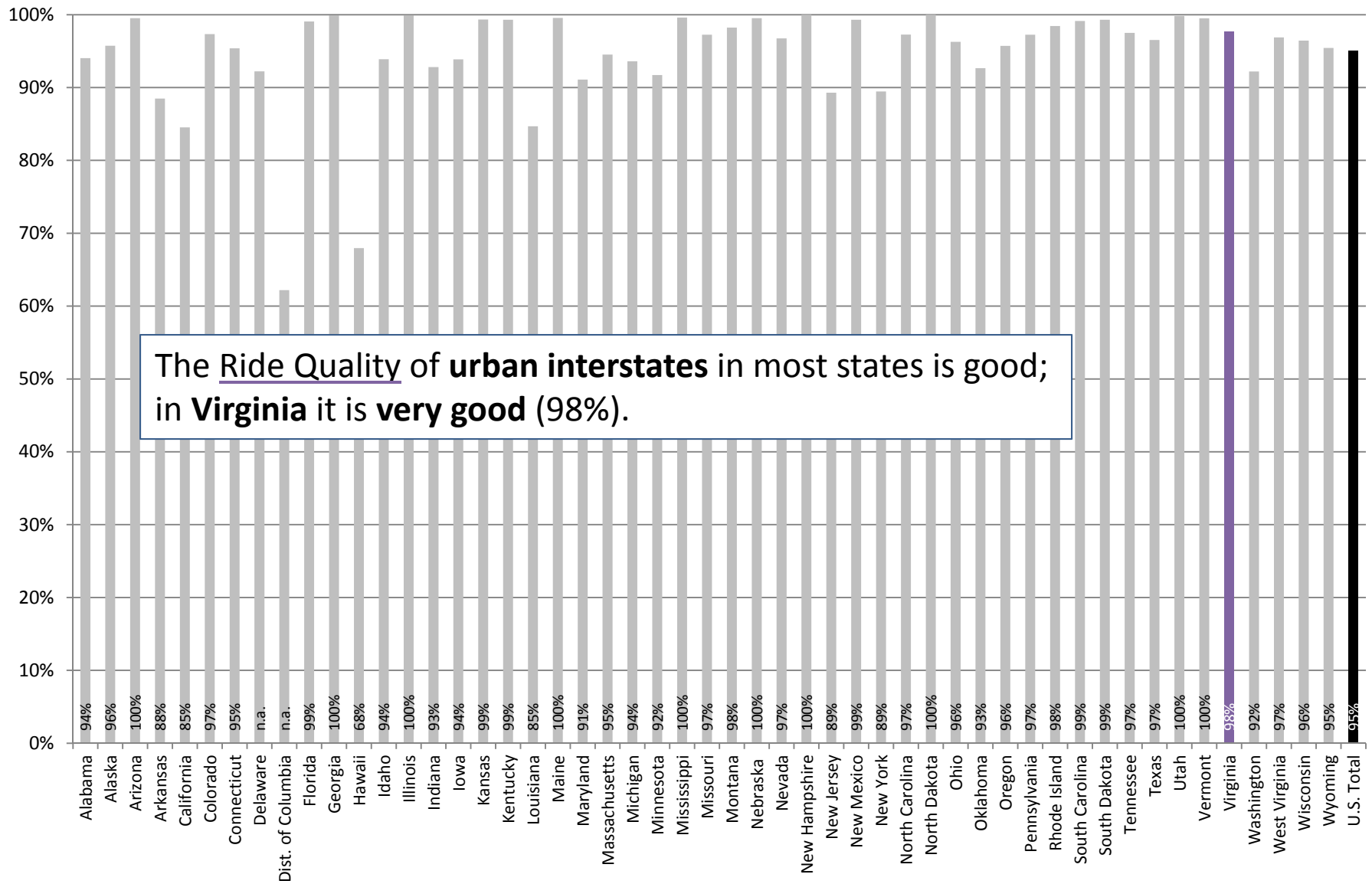
1. Interstates, by State
2. VDOT-Maintained Roadways

Ride Quality, Rural Interstates, Acceptable Lane-Miles (IRI \leq 170 in/mi), 2012



The Ride Quality of rural interstates in most states is very good; in **Virginia** it is **excellent** (100%).

Ride Quality, Urban Interstates, Acceptable Lane-Miles (IRI <= 170 in/mi), 2012



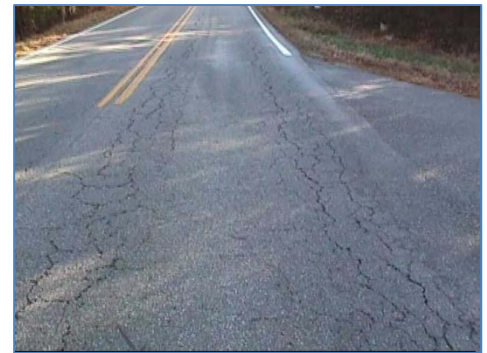
The Ride Quality of urban interstates in most states is good; in **Virginia** it is **very good (98%)**.

B. Pavement Data

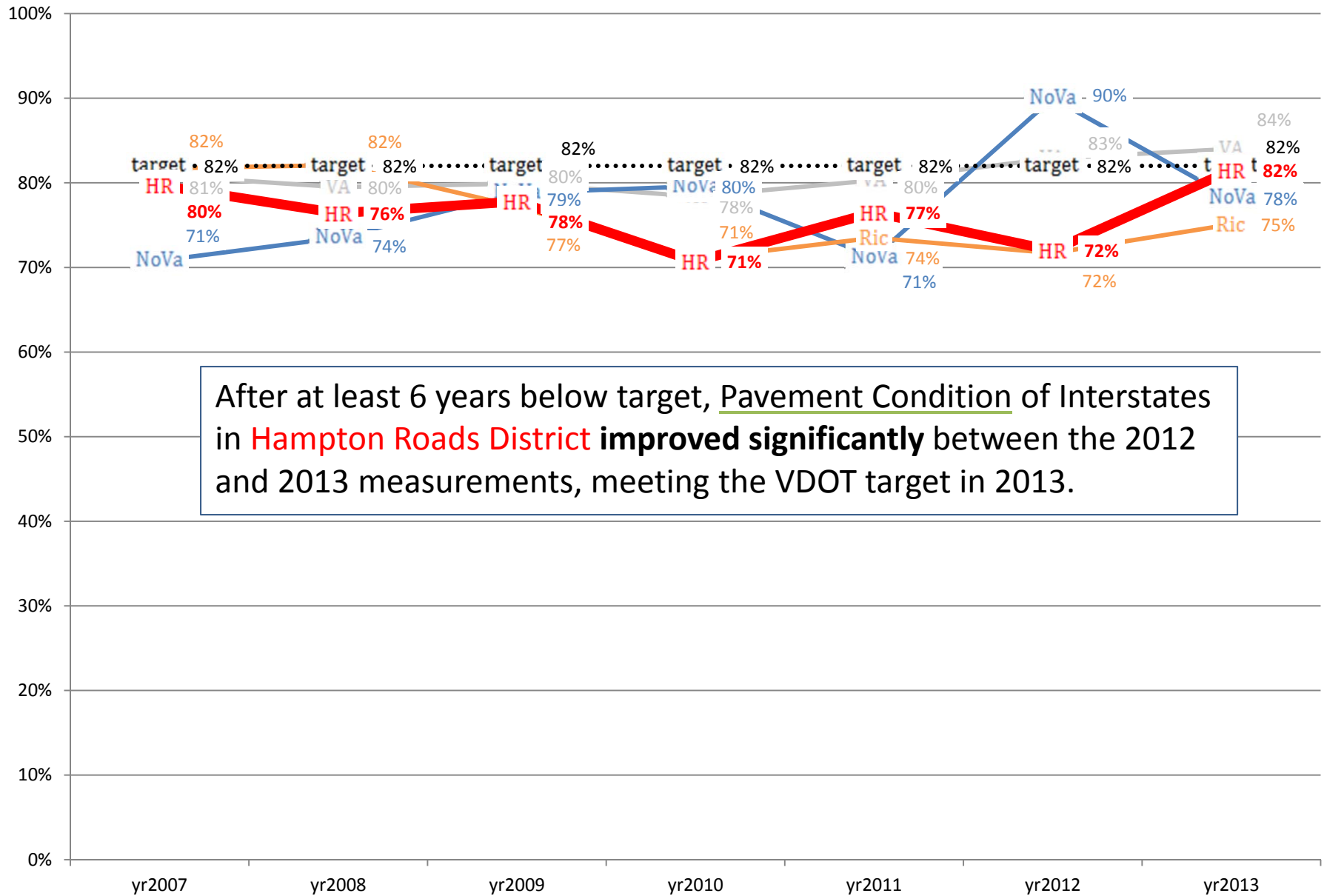
1. Interstates, by State
2. VDOT-Maintained Roadways
 - a. Pavement Condition
 - b. Ride Quality

a. Pavement Condition

(cracking)

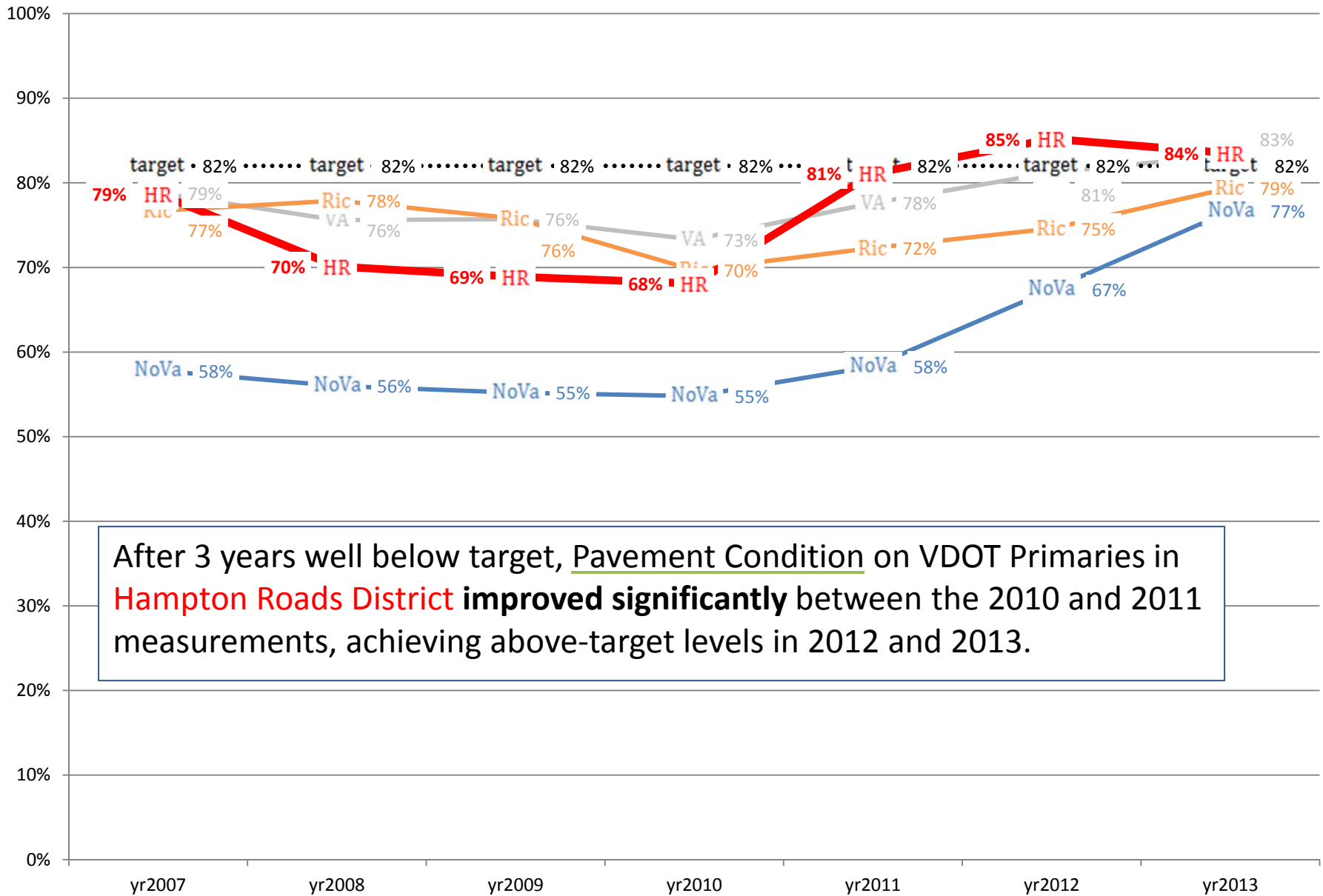


Pavement Condition, Interstates, lane-miles w/ CCI fair or better



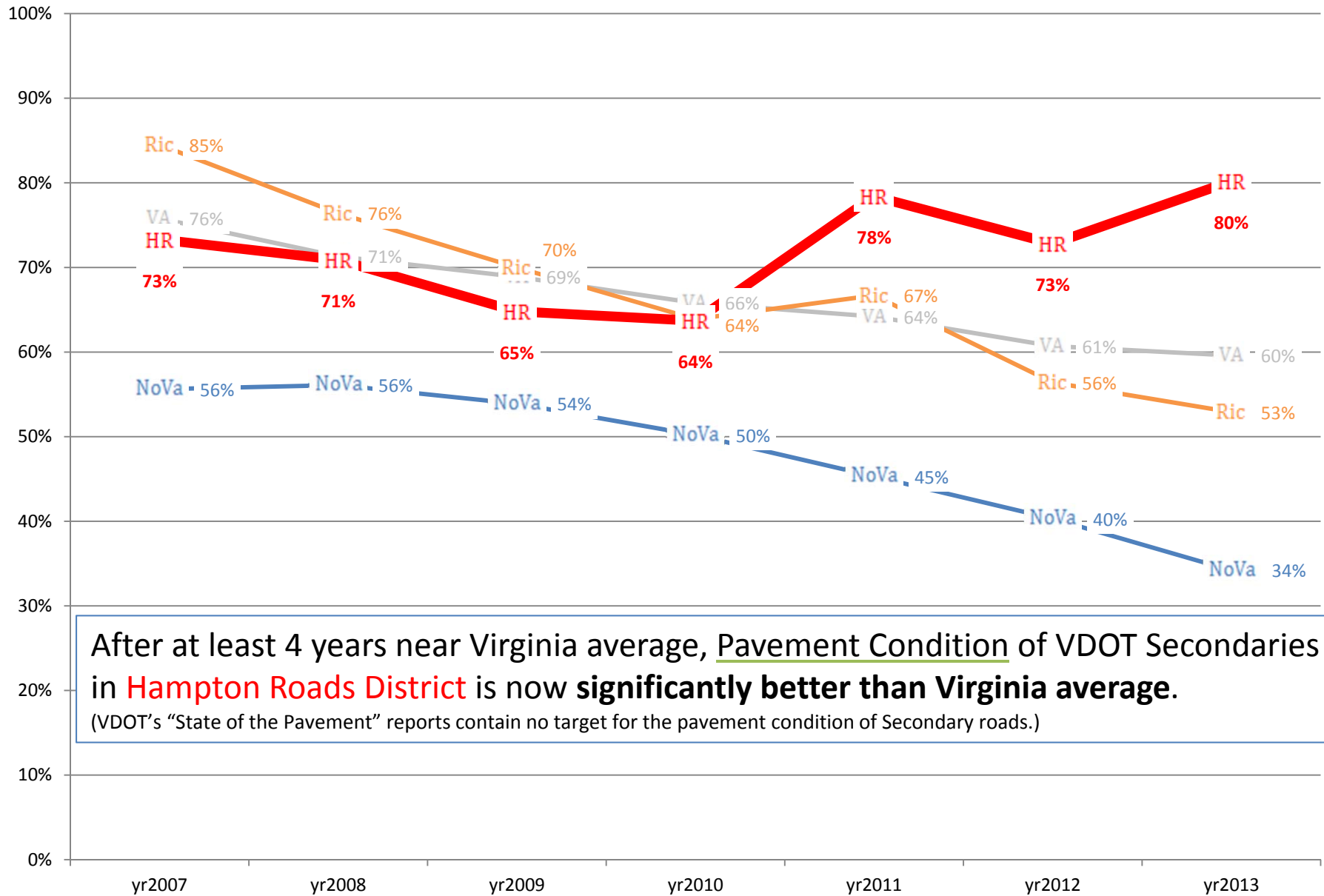
After at least 6 years below target, Pavement Condition of Interstates in **Hampton Roads District** **improved significantly** between the 2012 and 2013 measurements, meeting the VDOT target in 2013.

Pavement Condition, VDOT Primaries, lane-miles w/ CCI fair or better



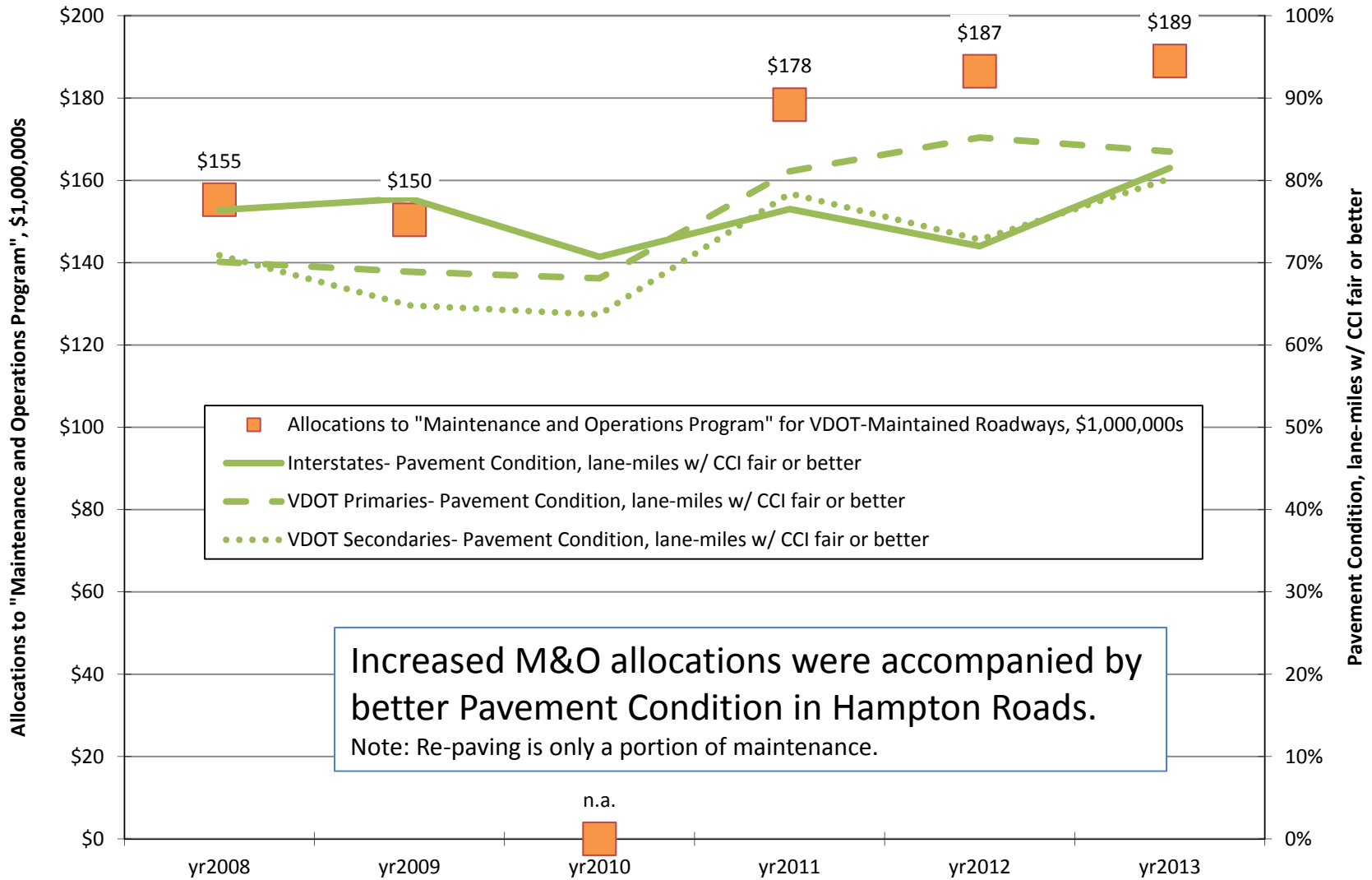
After 3 years well below target, Pavement Condition on VDOT Primaries in **Hampton Roads District** improved significantly between the 2010 and 2011 measurements, achieving above-target levels in 2012 and 2013.

Pavement Condition, VDOT Secondaries, lane-miles w/ CCI fair or better



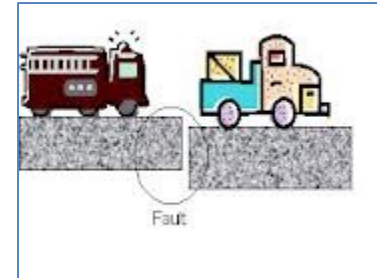
After at least 4 years near Virginia average, Pavement Condition of VDOT Secondaries in **Hampton Roads District** is now **significantly better than Virginia average**.
 (VDOT's "State of the Pavement" reports contain no target for the pavement condition of Secondary roads.)

Hampton Roads District- M&O Allocations and Pavement Condition

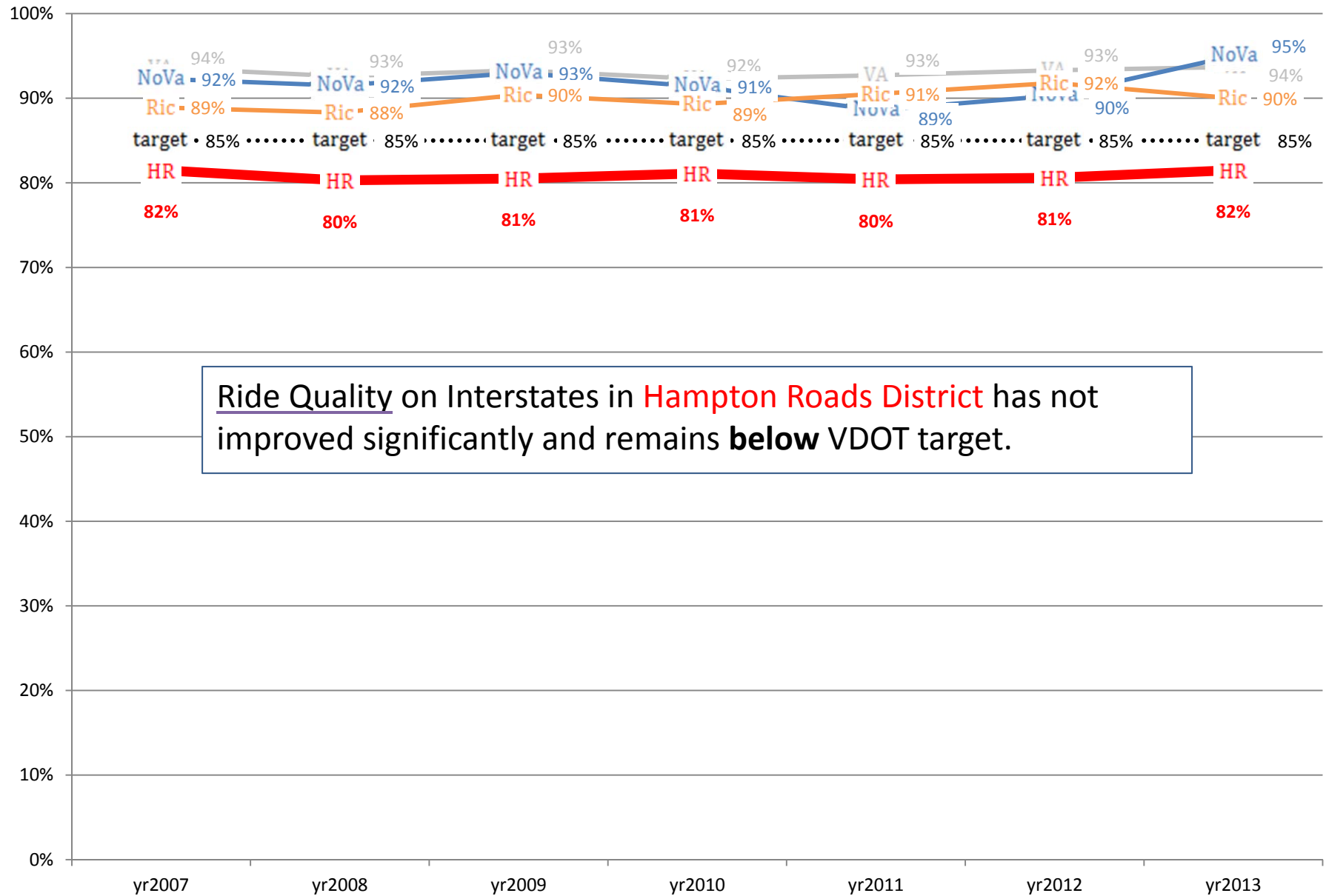


b. Ride Quality

(roughness)

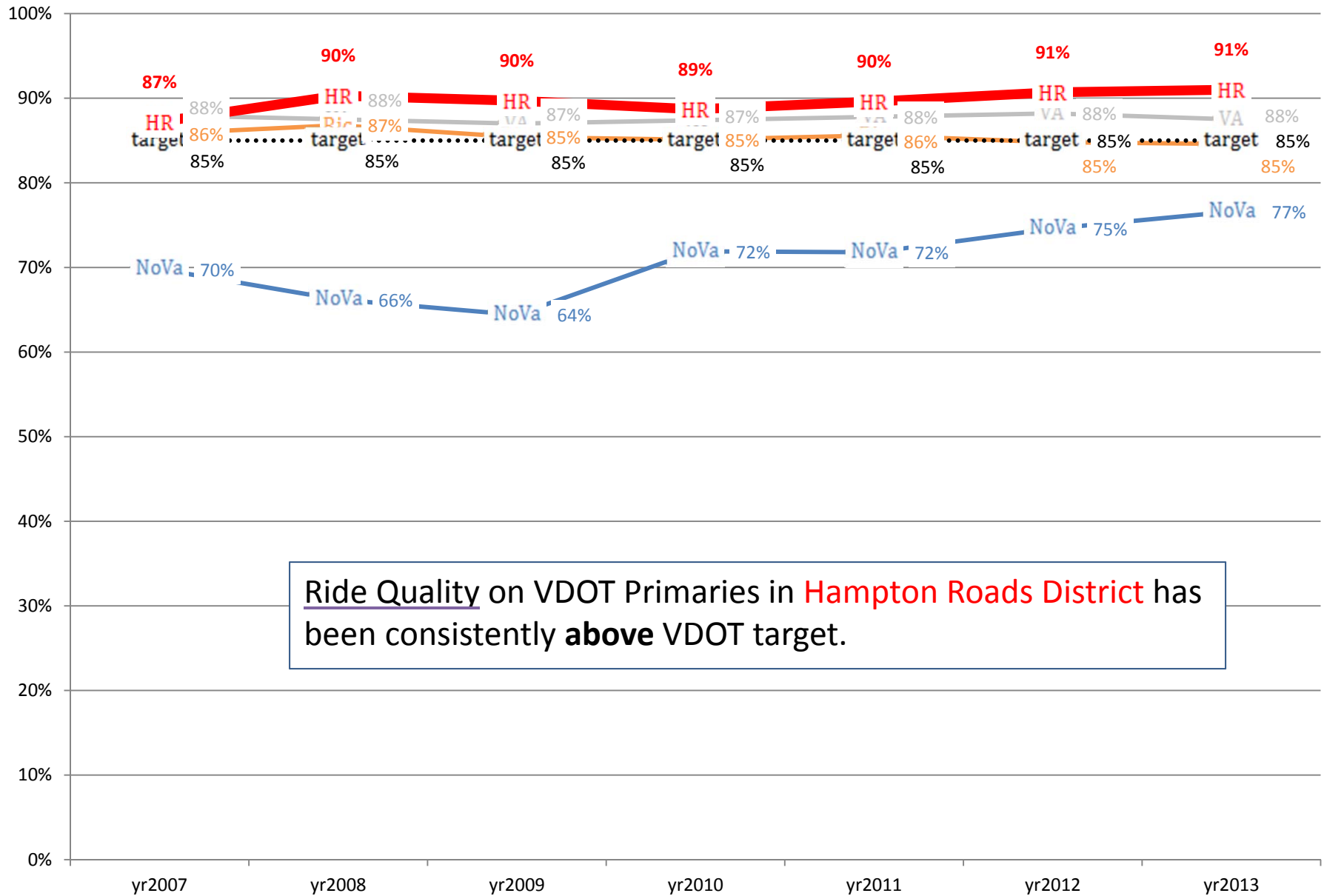


Ride Quality, Interstates, lane-miles w/ IRI fair or better



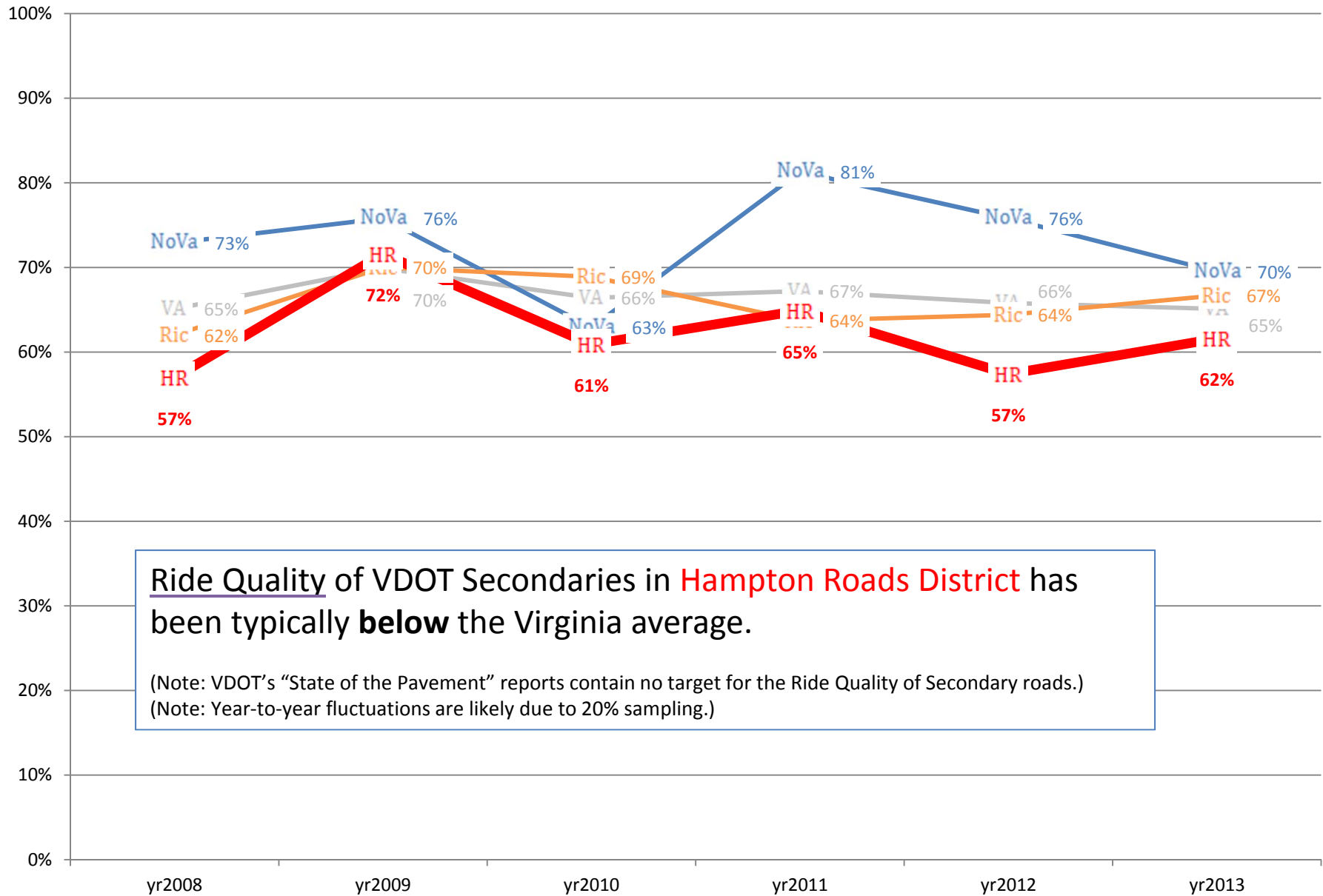
Ride Quality on Interstates in Hampton Roads District has not improved significantly and remains **below** VDOT target.

Ride Quality, VDOT Primaries, lane-miles w/ IRI fair or better



Ride Quality on VDOT Primaries in Hampton Roads District has been consistently **above** VDOT target.

Ride Quality, VDOT Secondaries, lane-miles w/ IRI fair or better



Ride Quality of VDOT Secondaries in **Hampton Roads District** has been typically **below** the Virginia average.

(Note: VDOT's "State of the Pavement" reports contain no target for the Ride Quality of Secondary roads.)
 (Note: Year-to-year fluctuations are likely due to 20% sampling.)

Summary of Ride Quality of VDOT-Maintained Roadways in HR District

- The Ride Quality of VDOT-Maintained Roadways in HR District:

- **varies by road type:**

- Interstates: **below** target
- Primaries: **above** target
- Secondaries: **below** average

- has **neither worsened nor improved**

Summary of Pavement Condition and Ride Quality for VDOT-Maintained Roadways

- Pavement Condition appears to have improved with increased M&O funding.
- Ride Quality has remained the same.

Next Steps

- Public review until June 18.
- Will ask for approval in July.