COMMONWEALTH *of* VIRGINIA

Office of the

SECRETARY *of* TRANSPORTATION

Initial Surface Transportation Performance Report

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Deputy Secretary of Transportation

July 18, 2017

Surface Transportation Performance

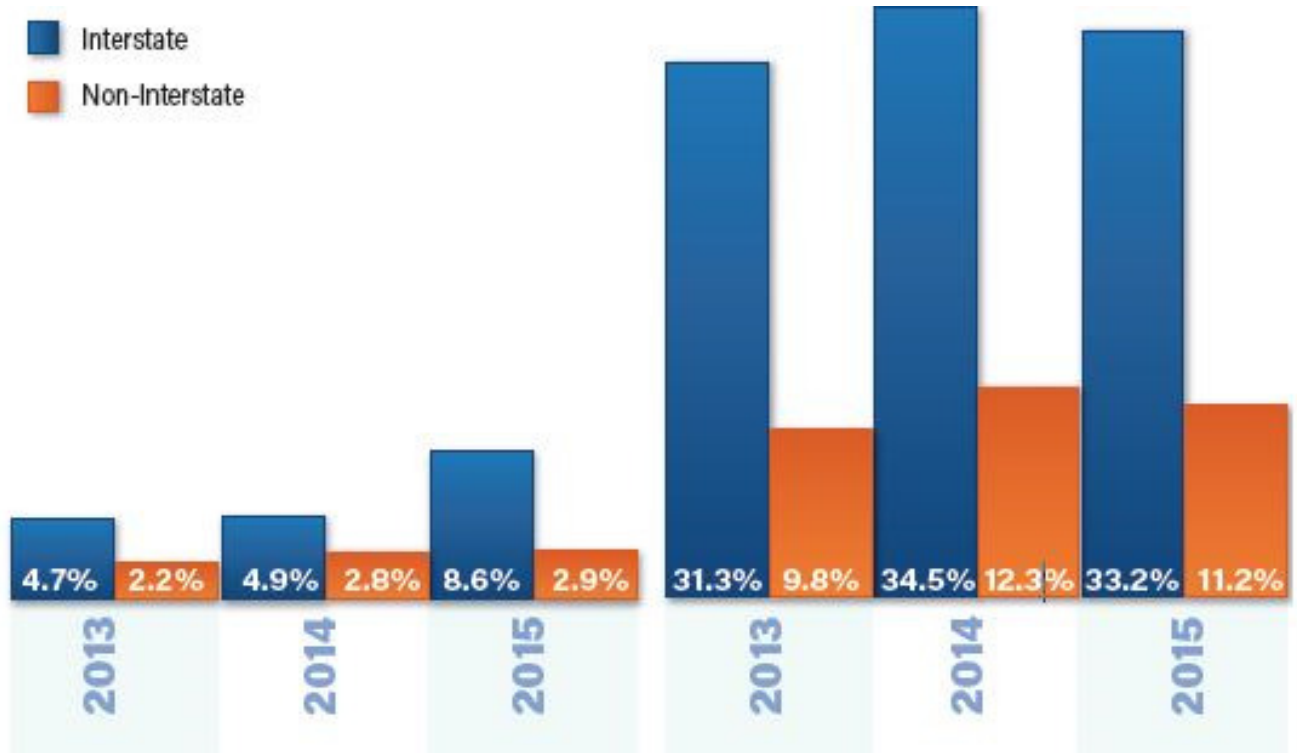
- **HB2241/SB1322 requires Office of Intermodal Planning and Investment to**
  - **Develop performance measures**
  - **Establish targets for future performance**
  - **Report annually on the progress towards to such targets**
- **Board adopted surface transportation performance objectives in December 2015**
- **Initial Surface Transportation Performance Report has been developed based adopted measures**

VTrans GOAL: ECONOMIC COMPETITIVENESS and PROSPERITY

- **Objectives:**
  - **A.1: Reduce the amount of travel that takes place in severe congestion**
    - Percent peak hour VMT occurring in congested conditions.
  - **A.2: Reduce the number and severity of freight bottlenecks**
    - Number of highway bottlenecks with daily freight ton hours of delay per mile > 250,000.
  - **A. 3: Improve reliability on key corridors for all modes**
    - Roadway Buffer Time Index (BTI).
    - Rail/Transit On-Time Performance (OTP).

A.1: Reduce the amount of travel that takes place in severe congestion

Percent Peak-Hour Congested



A.1: Reduce the amount of travel that takes place in severe congestion

Trend Showing Worsening Performance

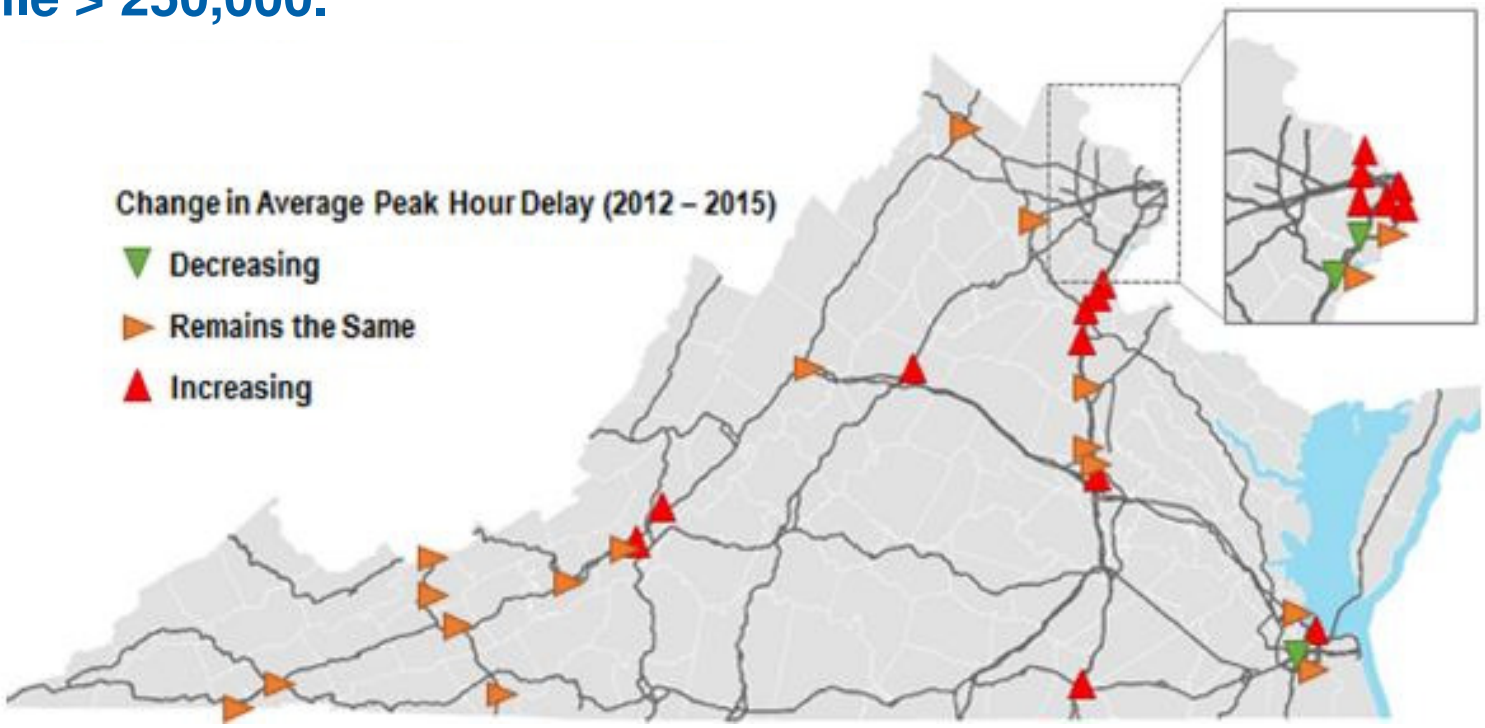
Performance Measure:

- Percent peak hour VMT occurring in congesting conditions.

- **Worst Locations:**
  - Interstates almost double statewide from 2013 to 2015.
  - Principal Arterials increase from 2013 to 2015 is minor
  - In Northern Virginia the share of peak hour travel experiencing severe congestion slightly decreases in 2015.

A.2: Reduce the number and severity of freight bottlenecks

Number of highway bottlenecks with daily freight ton hours of delay per mile > 250,000.



A.2: Reduce the number and severity of freight bottlenecks

Trend Showing Improving Performance with Challenges

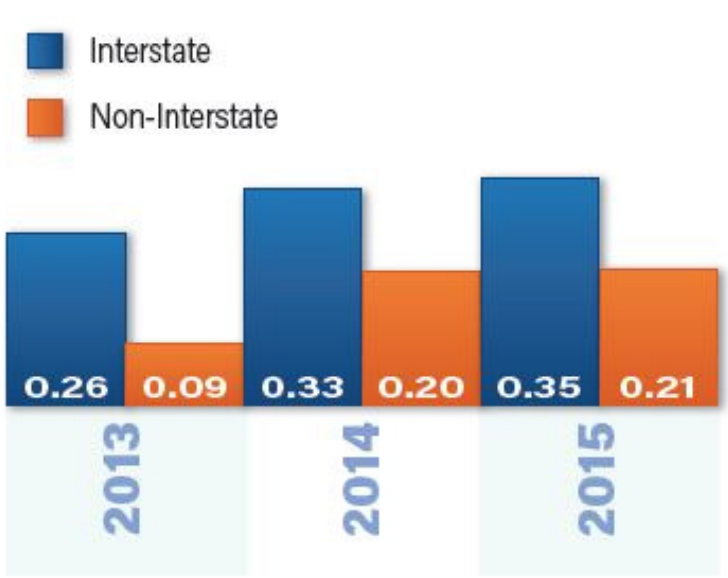
Performance Measure:

- Number of highway bottlenecks with daily freight on hours of delay per mile >250,000.

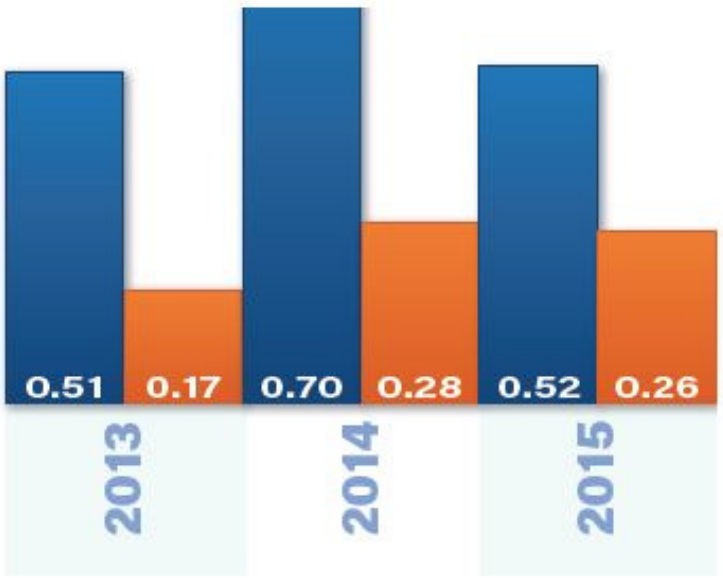
- **Worst Locations:**
  - Based on 2012 data, 10 of the 37 bottlenecks were in Northern Virginia, with the I-495 from VA 267 to the American Legion Bridge as the most severe bottleneck in the Commonwealth.
  - From 2012 to 2015, 20 of 37 bottlenecks showed an improvement or no change in delay per mile.
  - Of the 17 bottlenecks showing an increase in delay per mile, 12 were in the I-95 corridor.

A.3: Improve reliability on key corridors for all modes

Roadway Buffer Time Index (BTI).



Statewide – By Roadway Type



Northern Virginia – By Roadway Type

A.3: Improve reliability on key corridors for all modes

Trend Showing Improving Performance with Challenges

Performance Measure:

- Roadway Buffer Time Index (BTI)

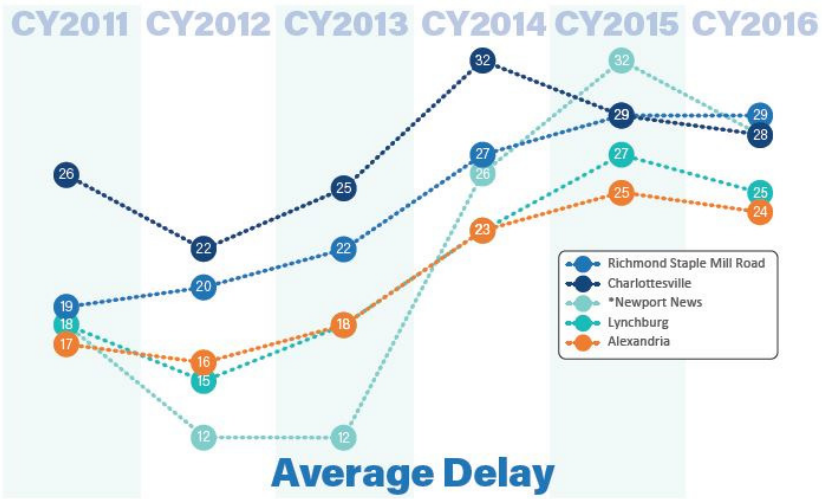
- **Key trends:**
  - Statewide BTI slightly increased in 2015 compared to 2013 and 2014 on interstates and principal arterials.
  - In Northern Virginia, the buffer time index on interstates decreased significantly from 2014 to 2015, bringing the BTI back to the same level as in 2013. BTI on non-interstates stayed at roughly the same level in 2015 as compared with 2014.

A.3: Improve reliability on key corridors for all modes

On-Time Performance by Select Bus Operators in Virginia

Bus System	FY 10	FY 11	FY 12	FY 13	FY 14
Fairfax Connector	93%	98%	97%	96%	97%
PRTC – Omni Link	N/A	N/A	N/A	96%	93%
DASH	93%	95%	91%	92%	92%
CUE	95%	95%	95%	86%	87%
ART	98%	98%	90%	90%	97%
Loudoun County Transit – Commuter Bus	95%	95%	95%	95%	95%
Loudoun County Transit – Local Bus	N/A	N/A	N/A	N/A	95%
WMATA Metrobus	89%	75%	75%	77%	78%
GRTC	N/A	N/A	N/A	N/A	84%
Hampton Roads Transit	N/A	N/A	N/A	73%	84%

Amtrak Average Departure Delay by Key Stations (2011-2016)



* Data reported for Newport News are arrival, rather than departure times.
Source: Amtrak.

A.3: Improve reliability on key corridors for all modes

Inconclusive Trend Due to Data Limitations

Performance Measure:

- Rail/Transit On-Time Performance (OTP)

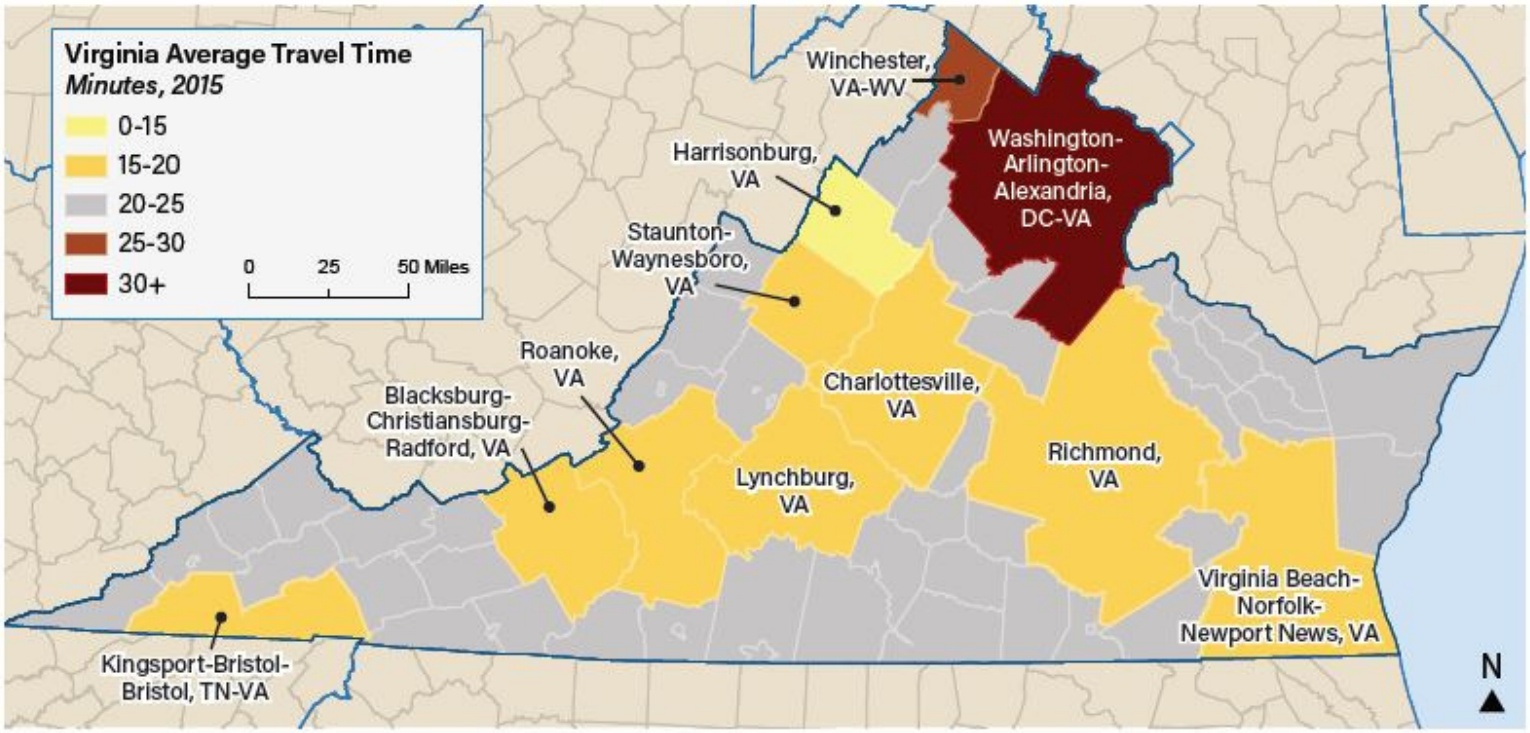
- For Amtrak stations tracked in this measure, average departure delay increased slightly in 2015 and 2016, except for the Charlottesville station which decreased average departure delay by 4 minutes in 2015 and 2016.

VTrans GOAL: ACCESSIBLE and CONNECTED PLACES

- **Objectives:**
  - **B.1: Reduce average peak-period travel times in metropolitan areas**
    - Average commute time by metropolitan area.
  - **B.2: Reduce average daily trip lengths in metropolitan areas**
    - Average trip length by metropolitan area.
  - **B.3: Increase the accessibility to jobs via transit, walking and driving in metropolitan areas**
    - Number of jobs within 45 minutes of an average household within a metropolitan area by mode.

B.1: Reduce average peak-period travel times in metropolitan areas

Average Commute Travel Time



Source: 2015 ACS data.

B.1: Reduce average peak-period travel times in metropolitan areas

Trend Showing Worsening Performance

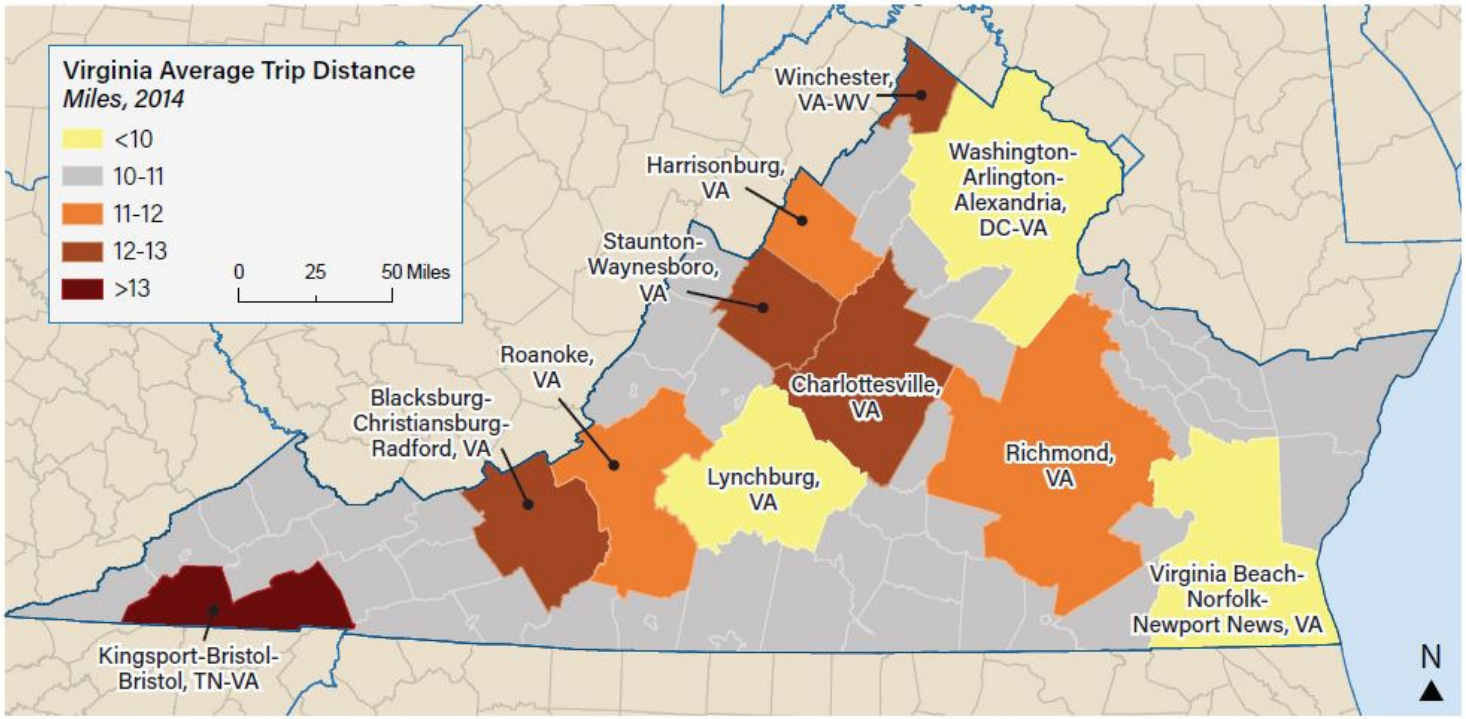
Performance Measure:

- Average Commute Time by Metropolitan Area

- **Worst Locations:**
  - Travel time for Virginia workers slightly increased from 2010 to 2015 based on U.S. Census data.

B.2: Reduce average daily trip lengths in metropolitan areas

Average Commute Trip Distance



Source: 2014 StreetLight data.

B.2: Reduce average daily trip lengths in metropolitan areas

Inconclusive Trend Due to New Measure Definition

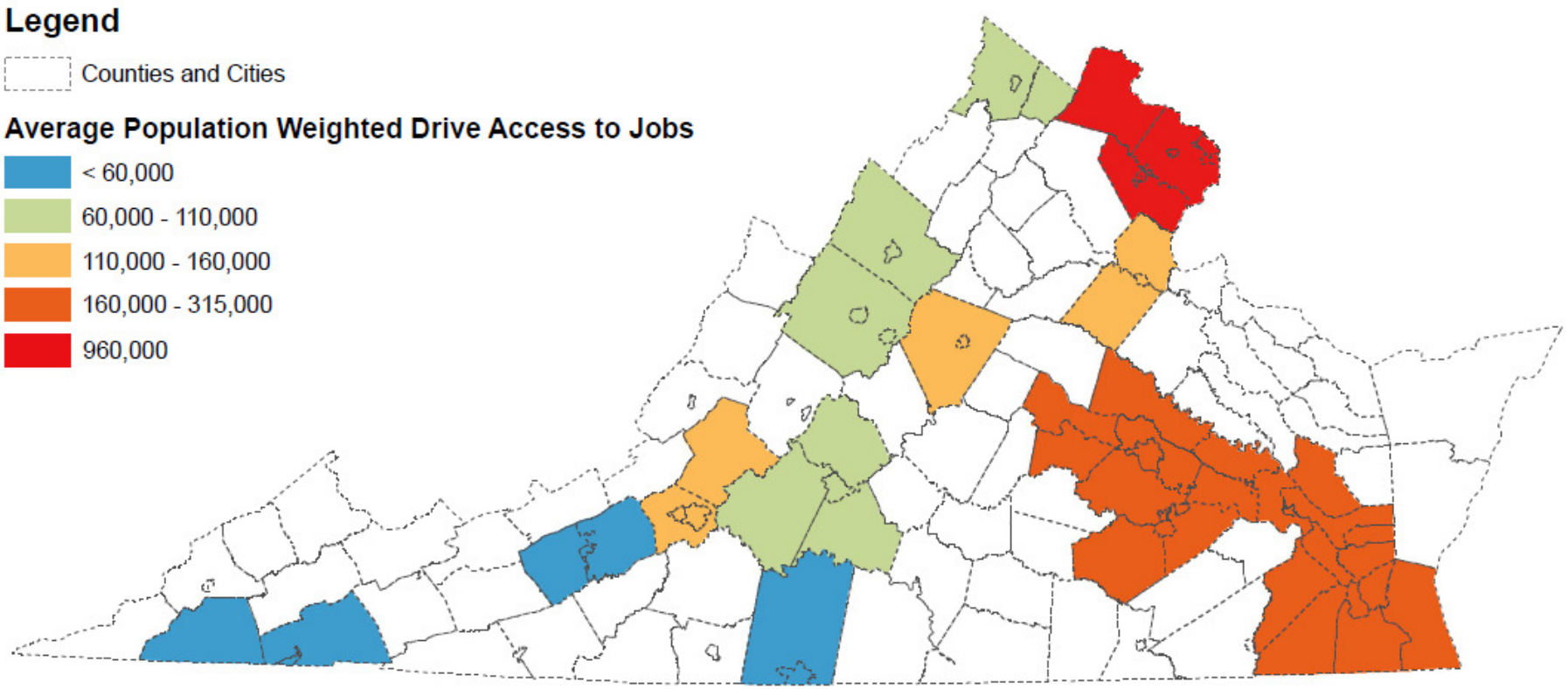
Performance Measure:

- Average Trip Length by Metropolitan Area

- **Worst Locations:**
  - Urban areas in Virginia with the longest average trip lengths include Charlottesville, Staunton- Waynesboro, Winchester, and Kingsport-Bristol.
- **Why This Is Objective Important:**
  - Increases in daily trip lengths in commuters work and non-work trips contributes to congested roads, intensifies vehicle emissions, and impacts productivity.
  - By identifying the travel patterns of Virginians in urban areas, this measure helps VDOT plan for programs and initiatives that can reduce both the average length and frequency of household auto travel while facilitating greater accessibility to employment and non-work venues.

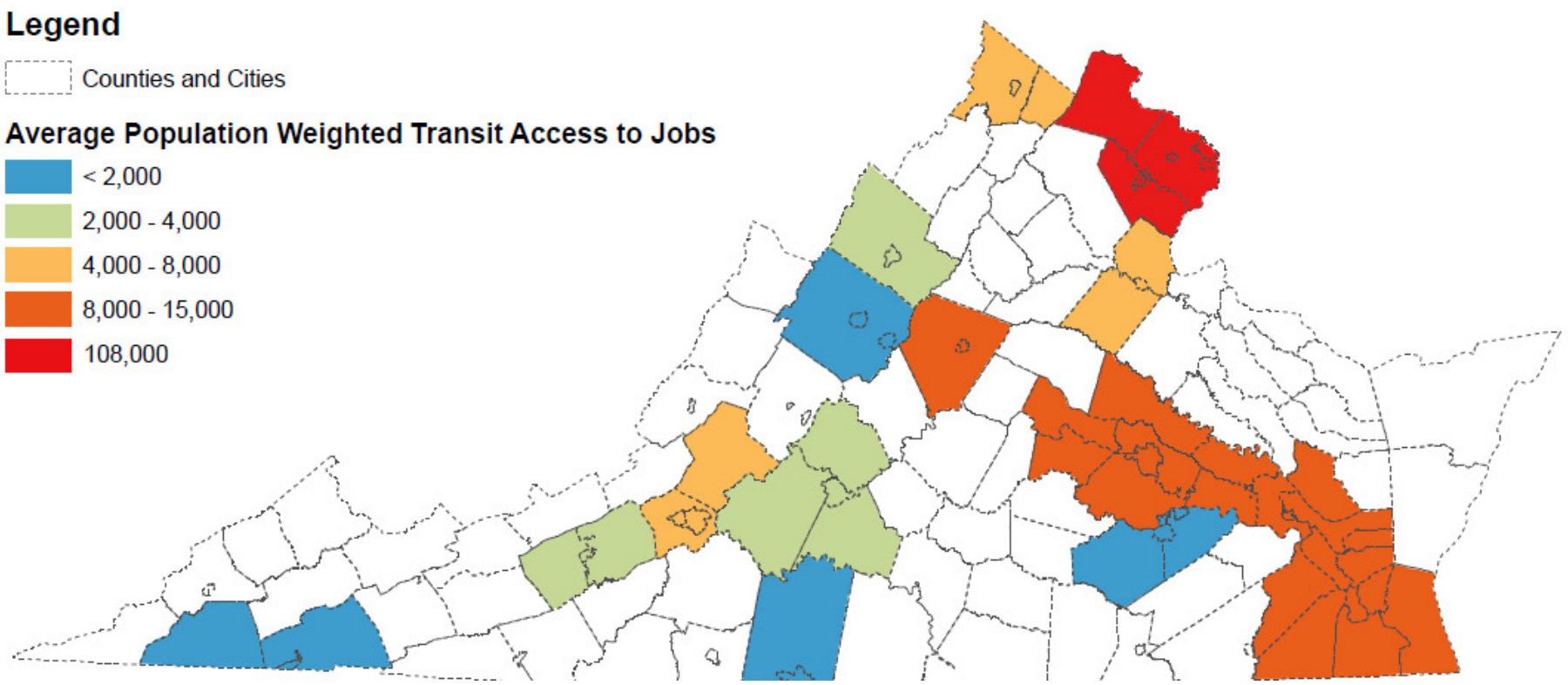
B.3: Increase the accessibility to jobs via transit, walking, and driving in metropolitan areas

Average Population Weighted Drive Access to Jobs



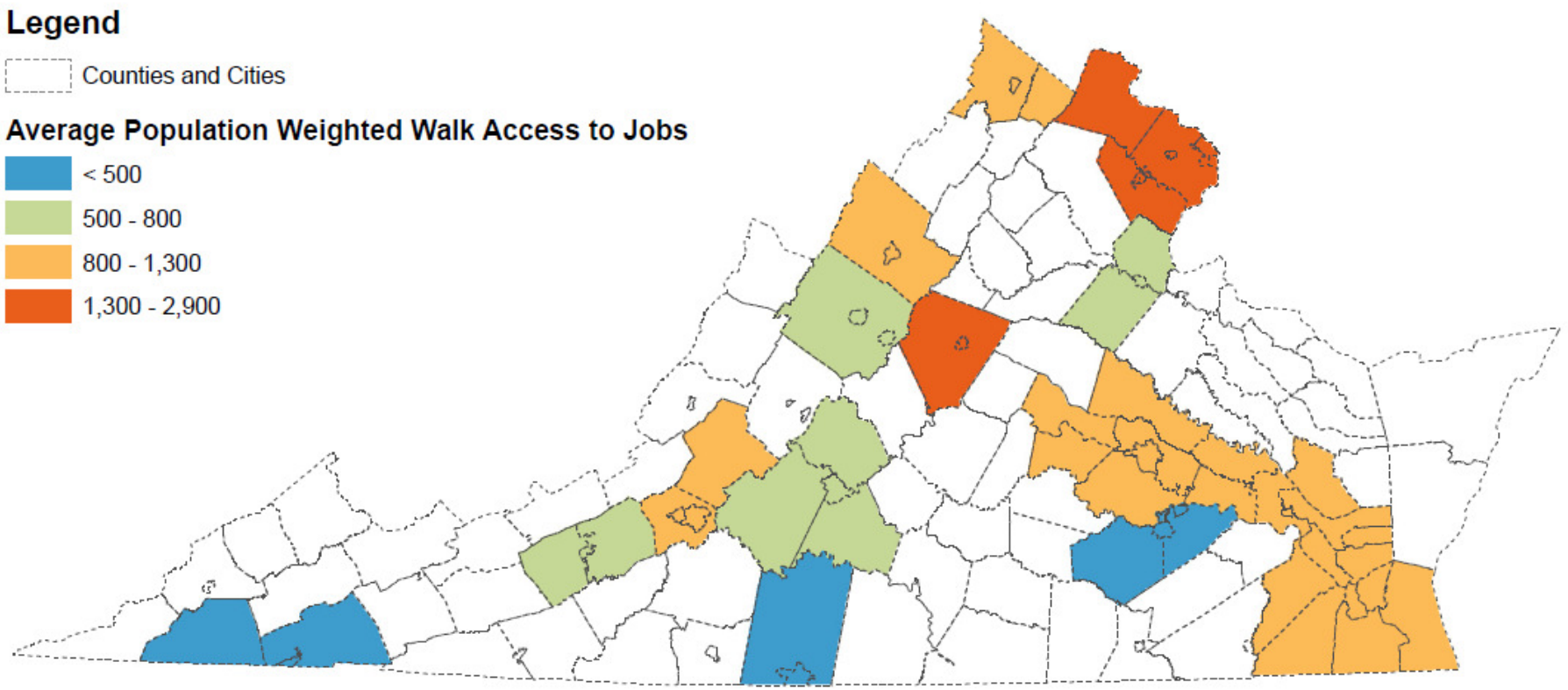
B.3: Increase the accessibility to jobs via transit, walking, and driving in metropolitan areas

Average Population Weighted Transit Access to Jobs



B.3: Increase the accessibility to jobs via transit, walking, and driving in metropolitan areas

Average Population Weighted Walk Access to Jobs



B.3: Increase the accessibility to jobs via transit, walking, and driving in metropolitan areas

Inconclusive Trend Due to New Measure Definition

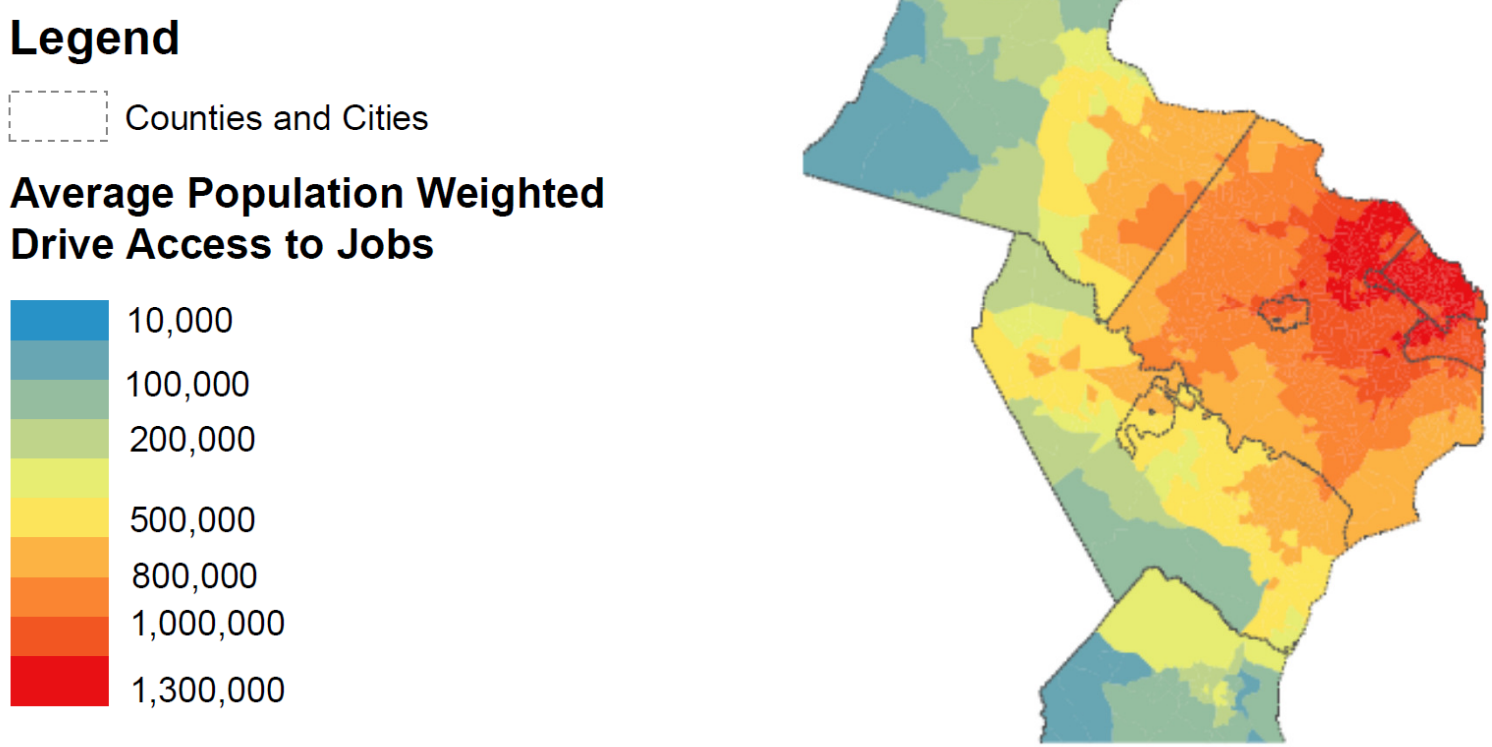
Performance Measure:

- Number of jobs within 45 minutes of an average household within a metropolitan area by mode.

- **Reliable longitudinal data on household accessibility to jobs is not available.**
- **Change in accessibility is a strong driver of mode choice.**
- **Based on U.S. Census data, the share of Virginia commuters driving alone has slightly increased from 77.2% in 2011 to 77.5% in 2015.**
- **During the same period, carpooling share has decreased while transit share has slightly increased (4.3% to 4.6%).**

B.3: Increase the accessibility to jobs via transit, walking, and driving in metropolitan areas

Average Population Weighted Drive and Transit Access to Jobs in Northern Virginia

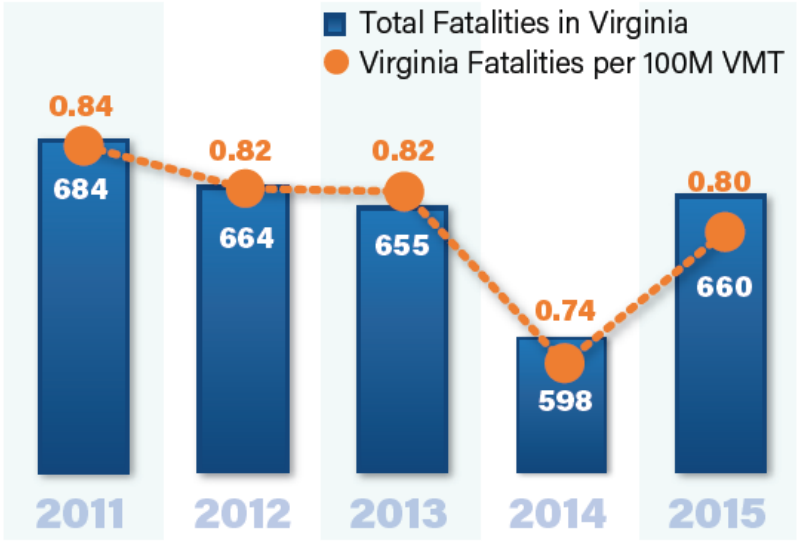


VTrans GOAL: SAFTEY FOR ALL USERS

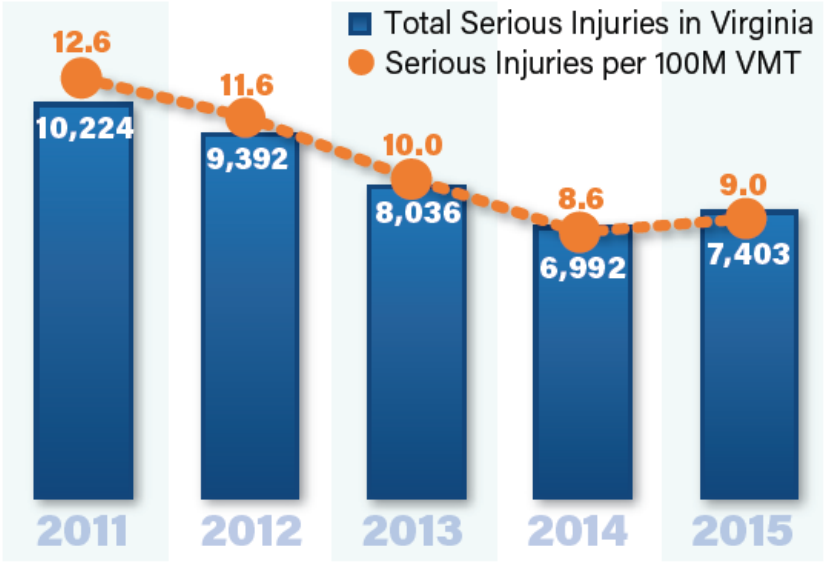
- **Objectives:**
  - **C.1: Reduce the number and rate of motorized fatalities and severe injuries**
    - Total number of motorized fatalities and severe injuries
  - **C.2: Reduce the number of non-motorized fatalities and severe injuries**
    - Number of motorized fatalities and severe injuries per 100 million vehicle miles.
    - Total non-motorized fatalities and severe injuries.

C.1: Reduce the number and rate of motorized fatalities and severe injuries

Total number of motorized fatalities and severe injuries



* Total motorized fatalities, data does not include bicycle and pedestrian fatality data (see Measure C2).



* Total motorized serious injuries, data does not include bicycle and pedestrian serious injury data (see Measure C2).

C.1: Reduce the number and rate of motorized fatalities and severe injuries

Trend Showing Improving Performance with Challenges

Performance Measure:

- Total number of motorized fatalities and severe injuries

Fatality rate and serious injury rate - trended downward since 2011, (slight increase in 2015).

Fatality causes in Virginia:

- **32% - alcohol-impaired driving;**
- **42% - unrestrained;**
- **41% - speed related;**
- **14% - distracted driving.**

Crashes are not accidents. In the vast majority of crashes, it is the actions of the road user that cause the crash.

C.1: Reduce the number and rate of motorized fatalities and severe injuries

High Risk Rural Roads in Virginia

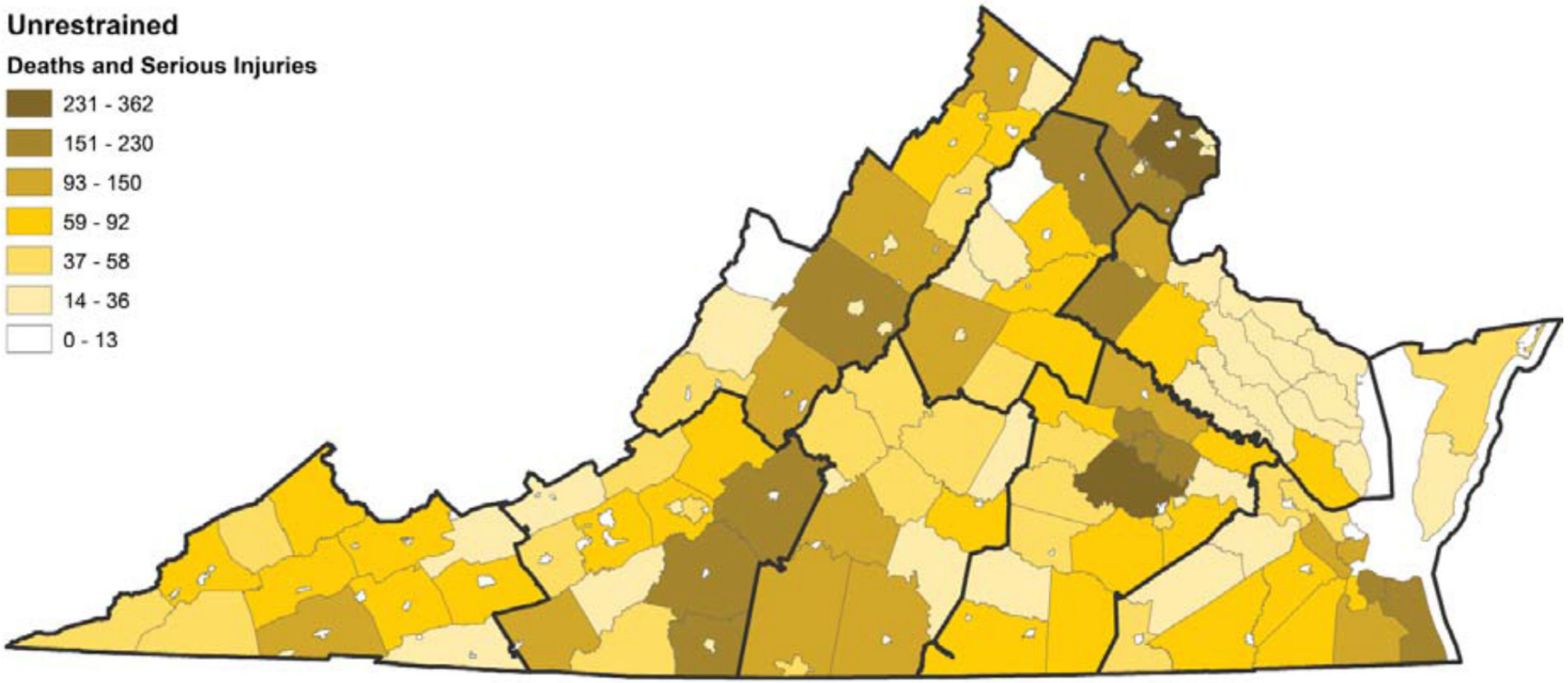
VTrans GOAL: SAFTEY FOR ALL USERS

After reviewing the data, the Strategic Highway Safety Plan Steering Committee selected the following emphasis areas (2017-2021):

* Includes drunk, drugged, drowsy, and distracted driving.

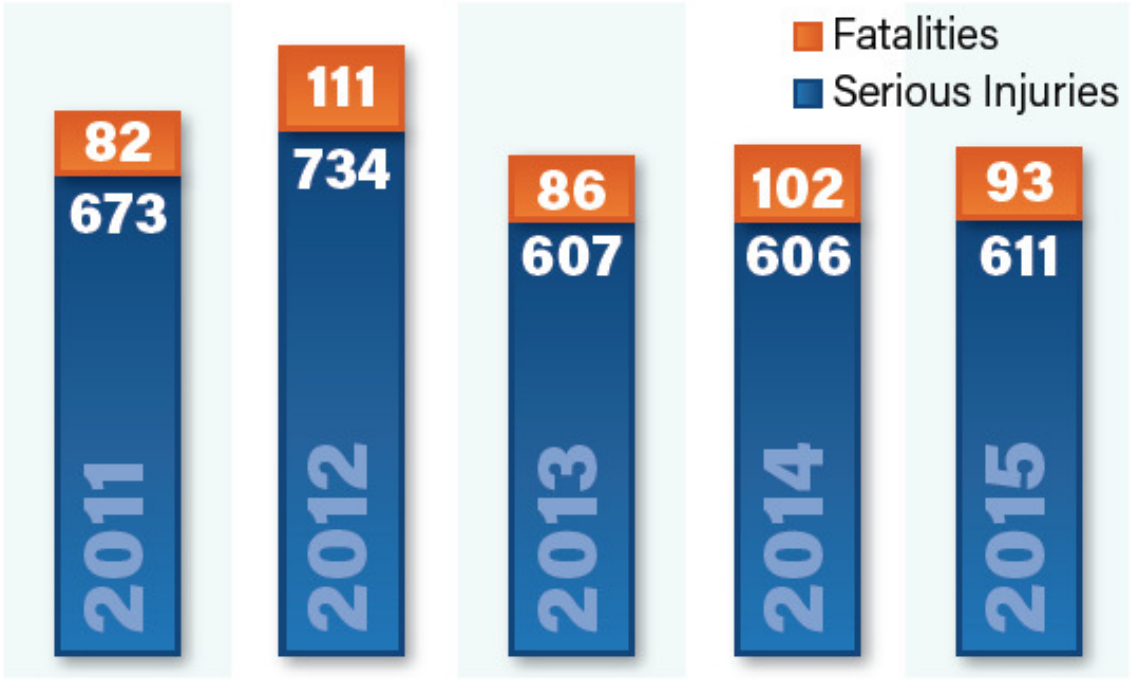
C.1: Reduce the number and rate of motorized fatalities and severe injuries

Occupant Protection Fatalities and Serious Injuries by Driver Age and Gender 2011 to 2015



C.2: Reduce the number and rate of non-motorized fatalities and severe injuries

Total number of non-motorized fatalities and severe injuries



C.1: Reduce the number and rate of non-motorized fatalities and severe injuries

Trend Showing Improving Performance with Challenges

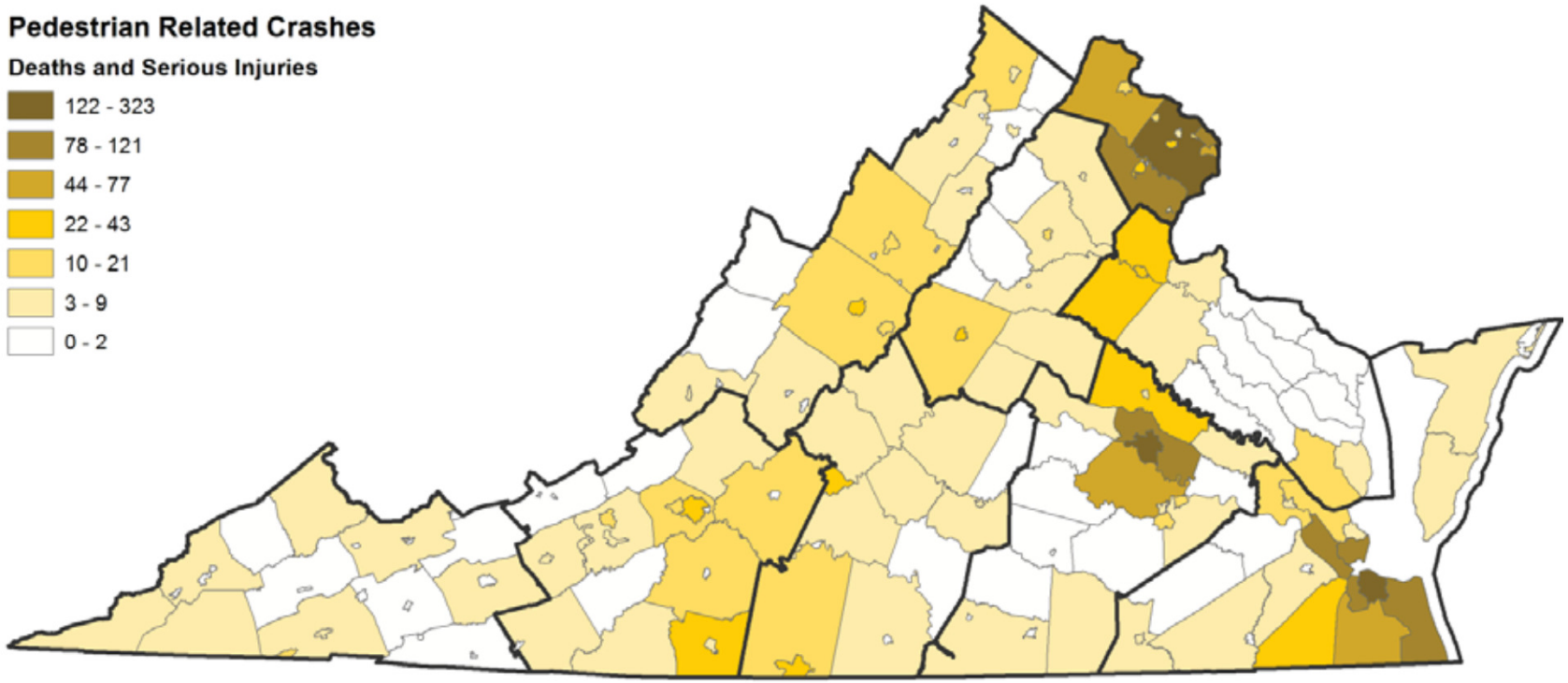
Performance Measure:

- Total number of non-motorized fatalities and severe injuries

- **Worst Locations:**
  - **Intersections** - interactions between bicyclists and vehicles are heightened.
  - **Area of High Vehicle speed** - most crashes involving cyclists occur at locations where the posted speed limit >30 miles per hour.
  - **Midblock Crossings** - when a pedestrian was crossing the street not at an intersection.

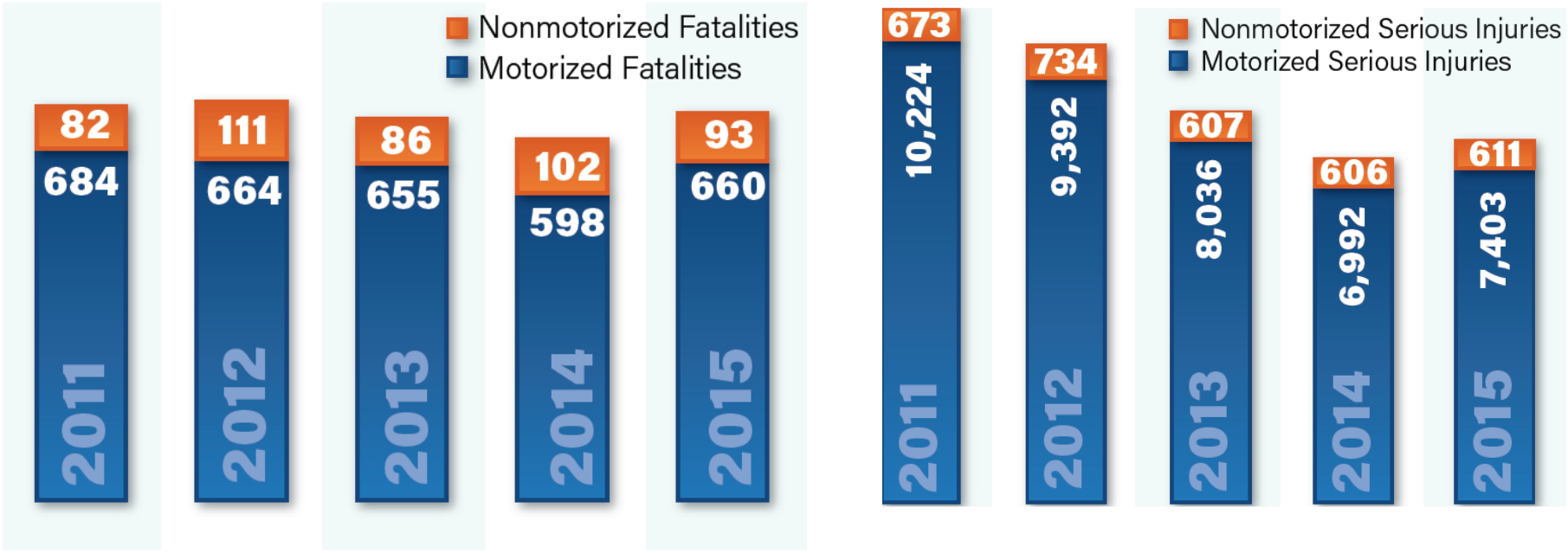
C.1: Reduce the number and rate of non-motorized fatalities and severe injuries

Pedestrian Fatalities and Serious Injuries by Location 2011 to 2015



C.2: Reduce the number and rate of non-motorized fatalities and severe injuries

Total number of non-motorized vs. motorized fatalities and severe injuries

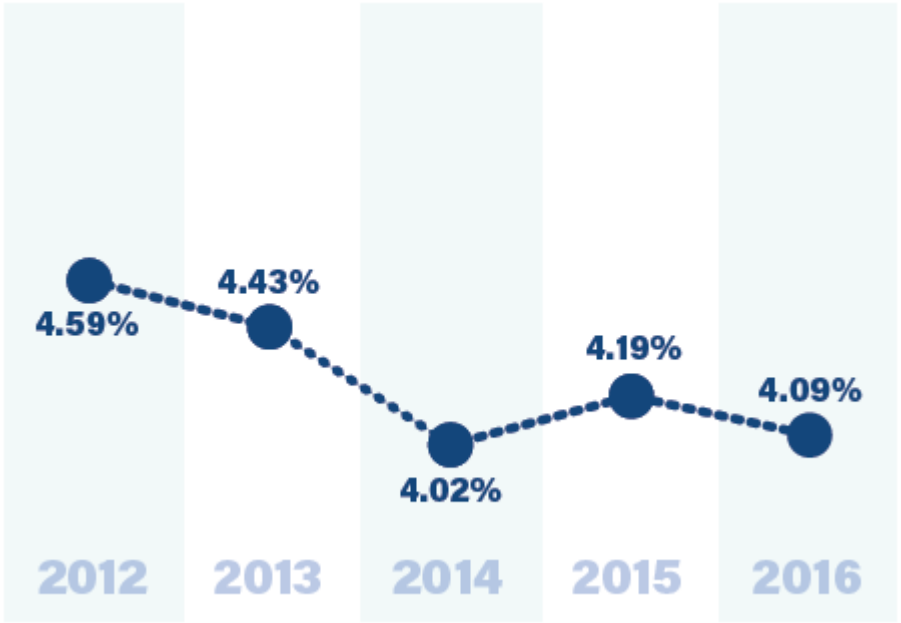


VTrans GOAL: PROACTIVE SYSTEM MANAGEMENT

- **Objectives:**
  - **D.1: Improve the condition of all bridges based on deck area**
    - Percent of bridge area rated as structurally deficient.
  - **D.2: Increase the lane miles of pavement in good or fair condition**
    - Percent of lane miles of pavement in fair or better condition.
  - **D.3: Increase percent of transit vehicles and facilities in good or fair condition**
    - Percent of transit fleet under recommended maximum age.

D.1: Improve the condition of all bridges based on deck area

Percent of bridge area rated as structurally deficient - Statewide Percent of Bridge Area Rated as Structurally Deficient (2012 to 2016)



D.1: Improve the condition of all bridges based on deck area

Trend Showing Improving Performance

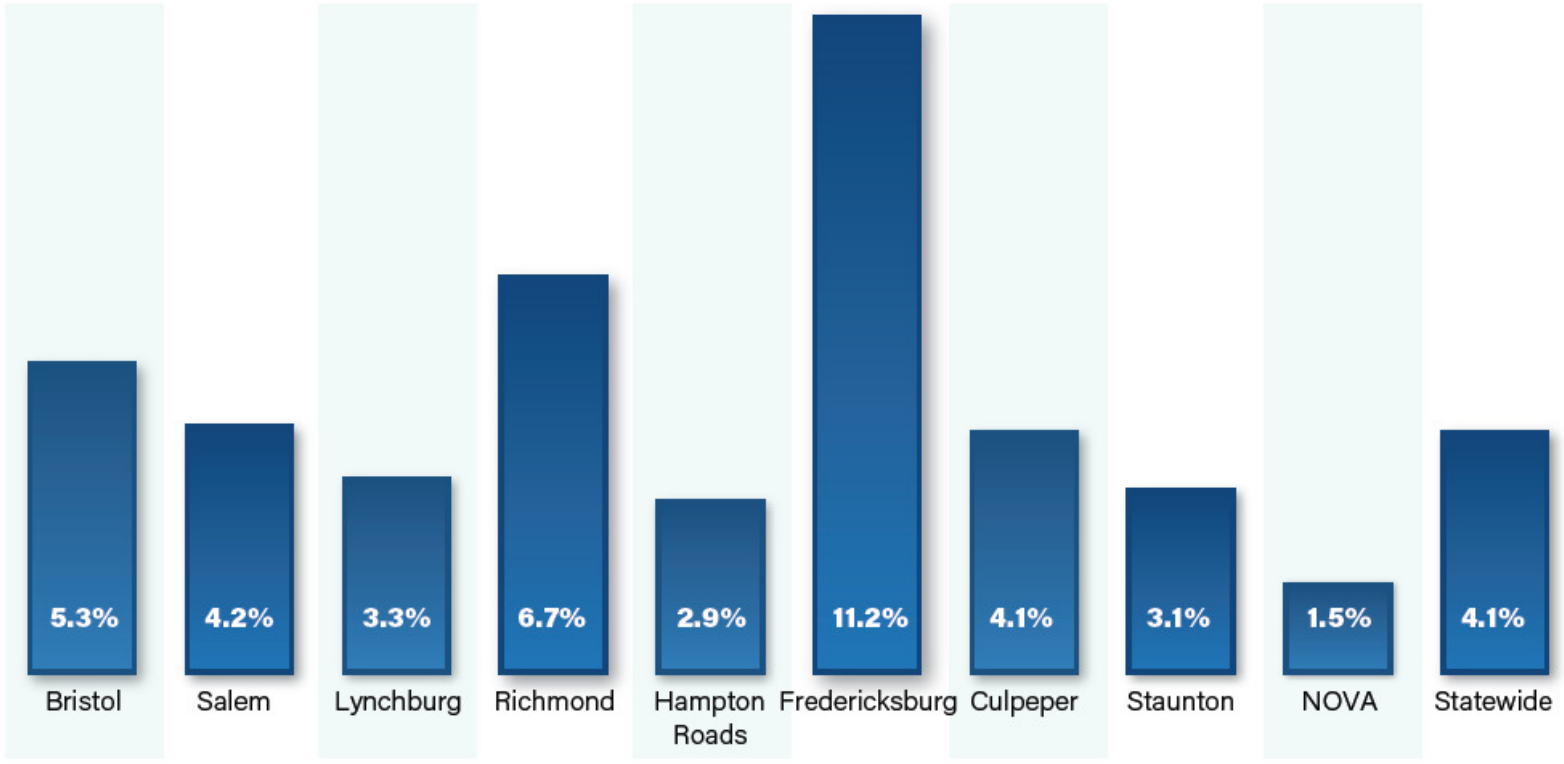
Performance Measure:

- Percent of bridge area rated as structurally deficient

- **Virginia has seen consistent improvements in bridge and highway structure condition since 2010.**

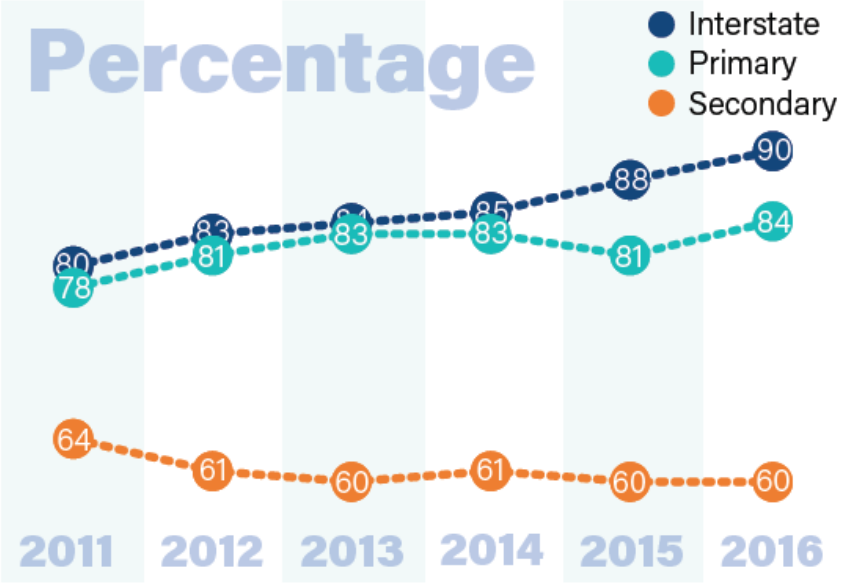
D.1: Improve the condition of all bridges based on deck area

Percent of bridge area rated as structurally deficient – by VDOT District



D.2. Increase the lane miles of pavement in good or fair condition

Percent of lane miles of pavement in fair or better condition.



D.2. Increase the lane miles of pavement in good or fair condition

Trend Showing Improving Performance with Challenges

Performance Measure:

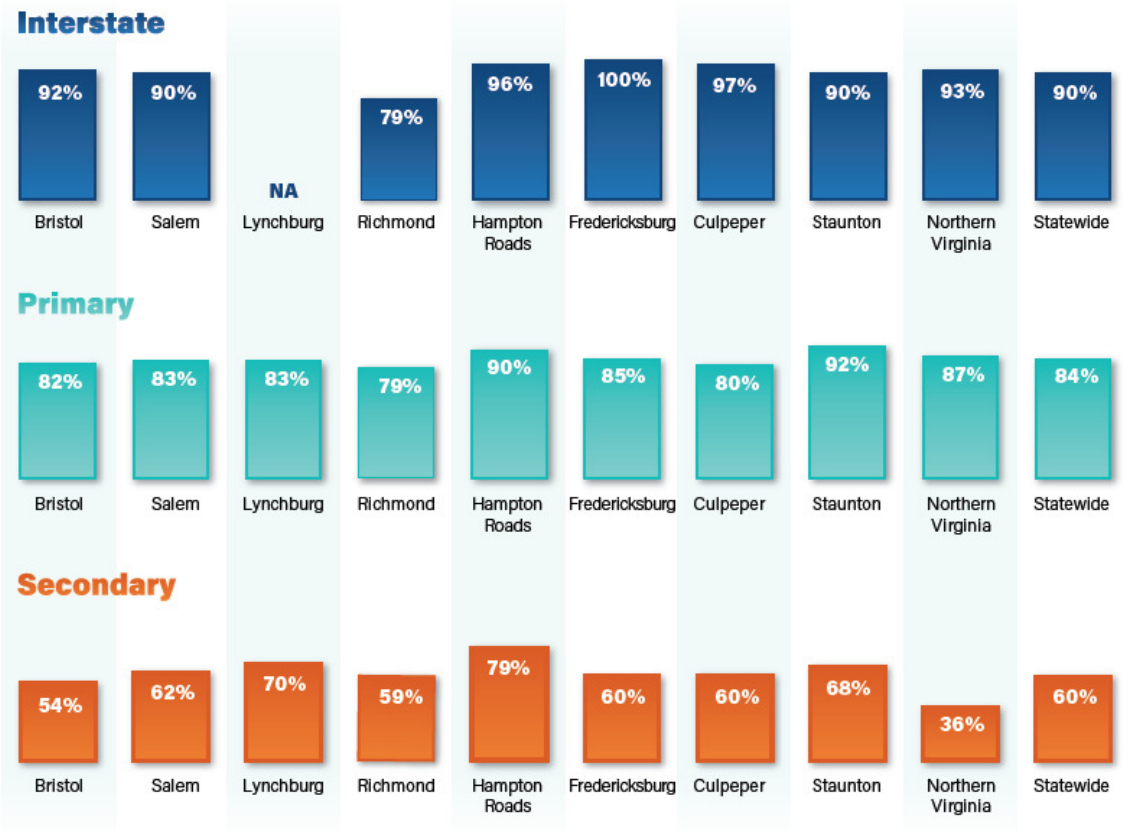
- Percent of lane miles of pavement in fair or better condition.

- **The percentage of roads rated as in fair, good, or excellent condition increased between 2010 and 2016 for both Interstate (+12%) and Primary (+11%) roads.**

- **Secondary roads saw the opposite trend, with a 6% decrease in roads rated as fair or better *(although the percent of lane miles has remained constant since 2012).***

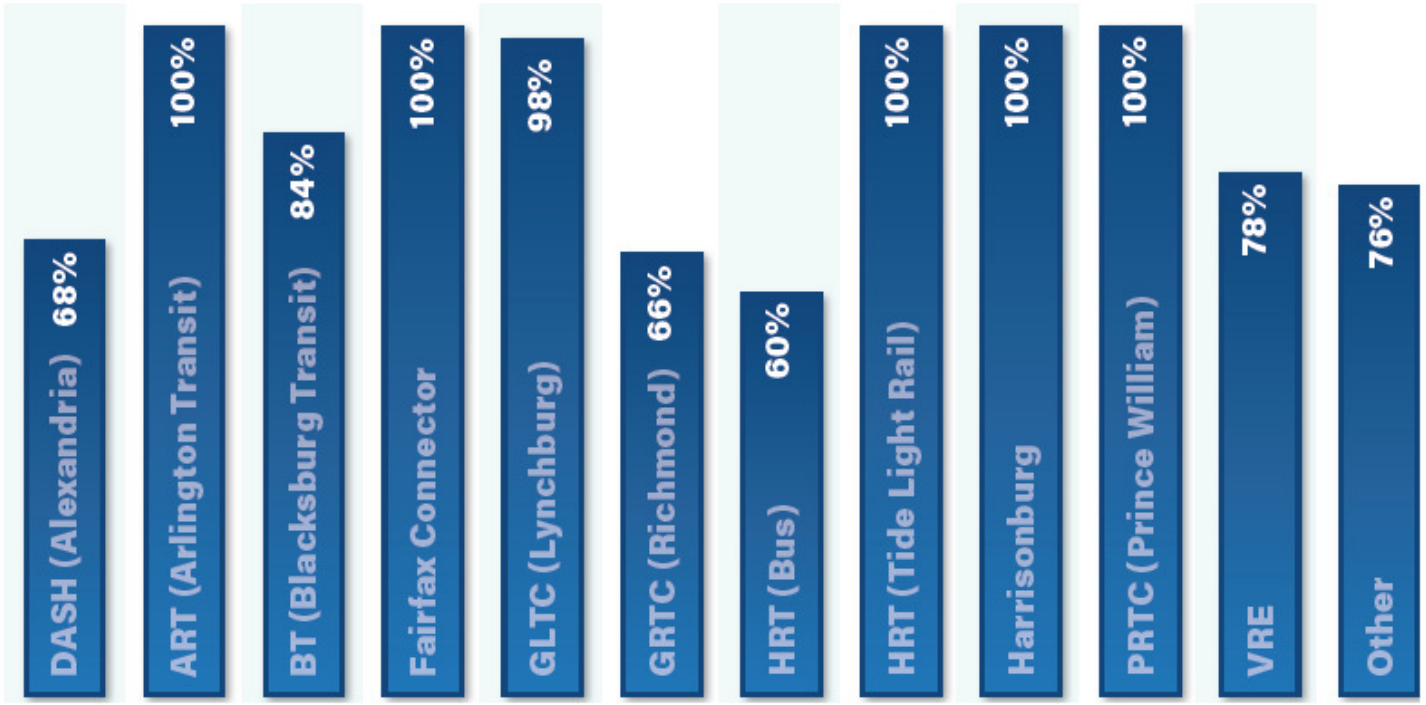
D.2. Increase the lane miles of pavement in good or fair condition

Percent of lane miles of pavement in fair or better condition.



D.3: Increase percent of transit vehicles and facilities in good or fair condition

Percent of transit fleet under recommended maximum age (excludes Paratransit).



D.3: Increase percent of transit vehicles and facilities in good or fair condition

Inconclusive Trend Due to Data Limitations

Performance Measure:

- Percent of transit fleet under recommended maximum age (excludes Paratransit).

- **Five of 11 transit agencies have 100% of their fleet under the recommended maximum age, the remaining 6 report percentages ranging from 60% to 84%.**

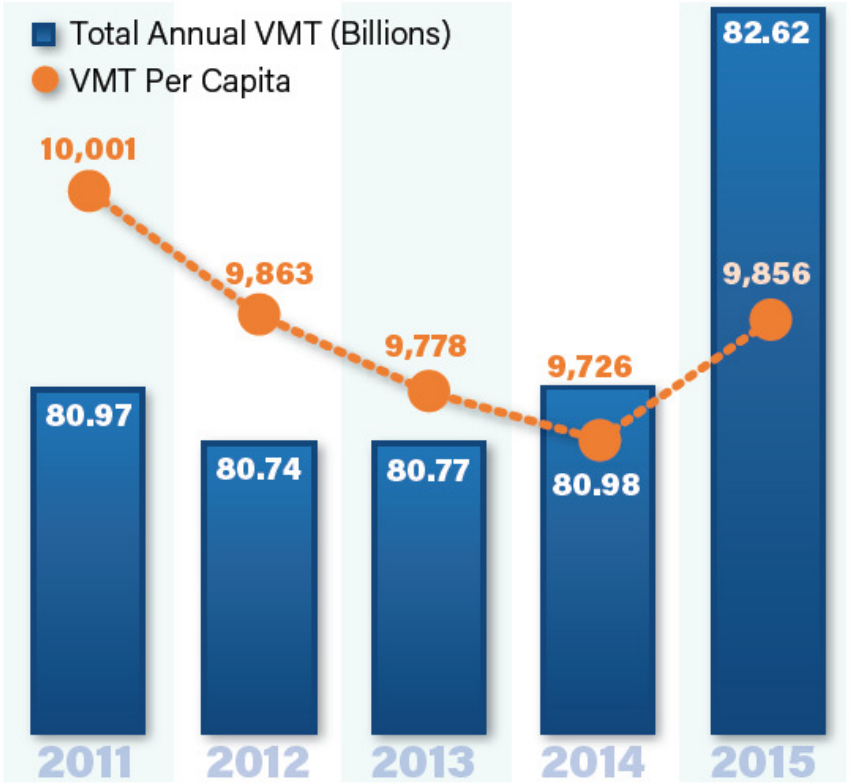
- **Reliable longitudinal data not yet available due to different data reporting approaches by agency.**

VTrans GOAL: HEALTHY COMMUNITIES AND SUSTAINABLE TRANSPORTATION

- **Objectives:**
  - **E.1 Reduce per-capita vehicle miles traveled**
    - Vehicle miles traveled (VMT) per capita.
  - **E.2 Reduce transportation related criteria pollutant and greenhouse gas emissions**
    - Annual emissions of NOX, VOC, PM, and CO2 in tons.
  - **E.3 Increase the number of trips traveled by active transportation (bicycling and walking)**
    - Estimated active transportation (bicycling and walking) trips.

E.1 Reduce per-capita vehicle miles traveled

Vehicle miles traveled (VMT) per capita.



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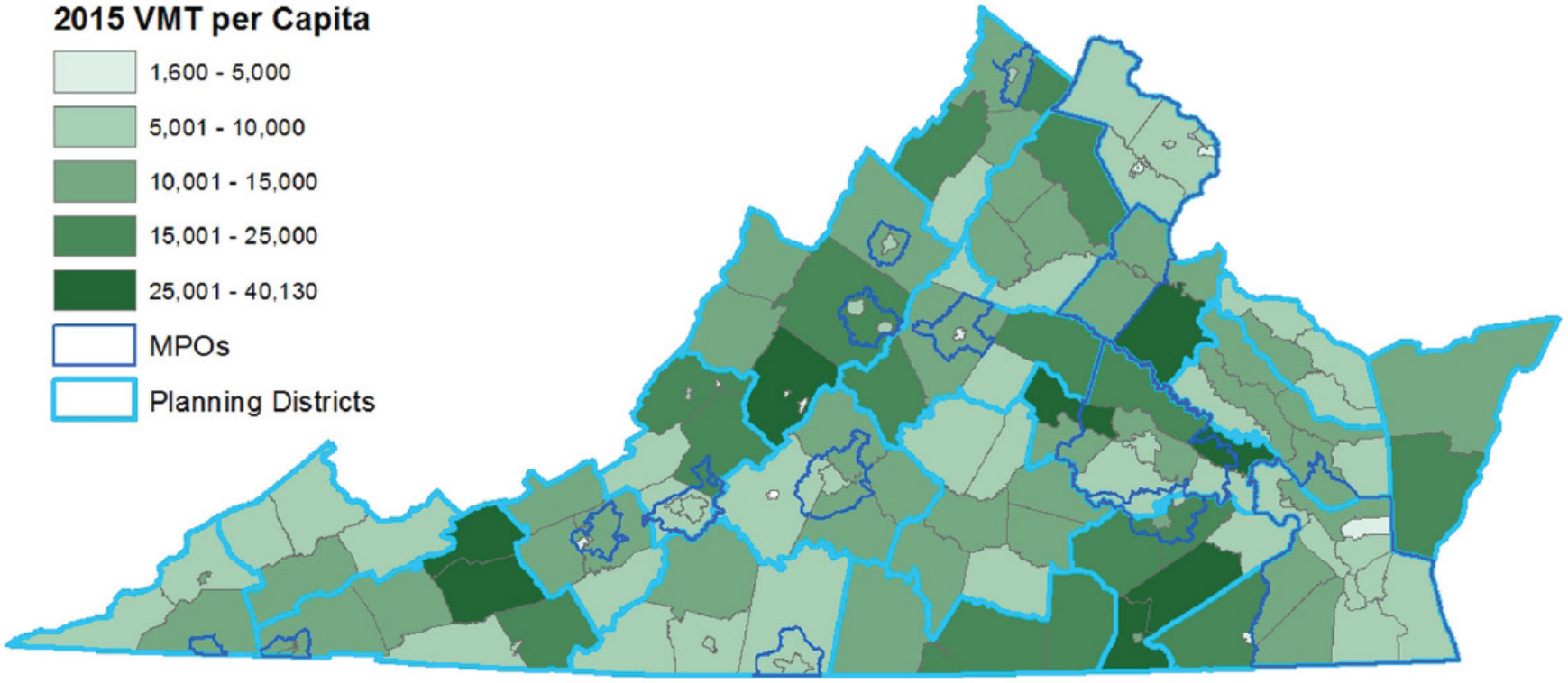

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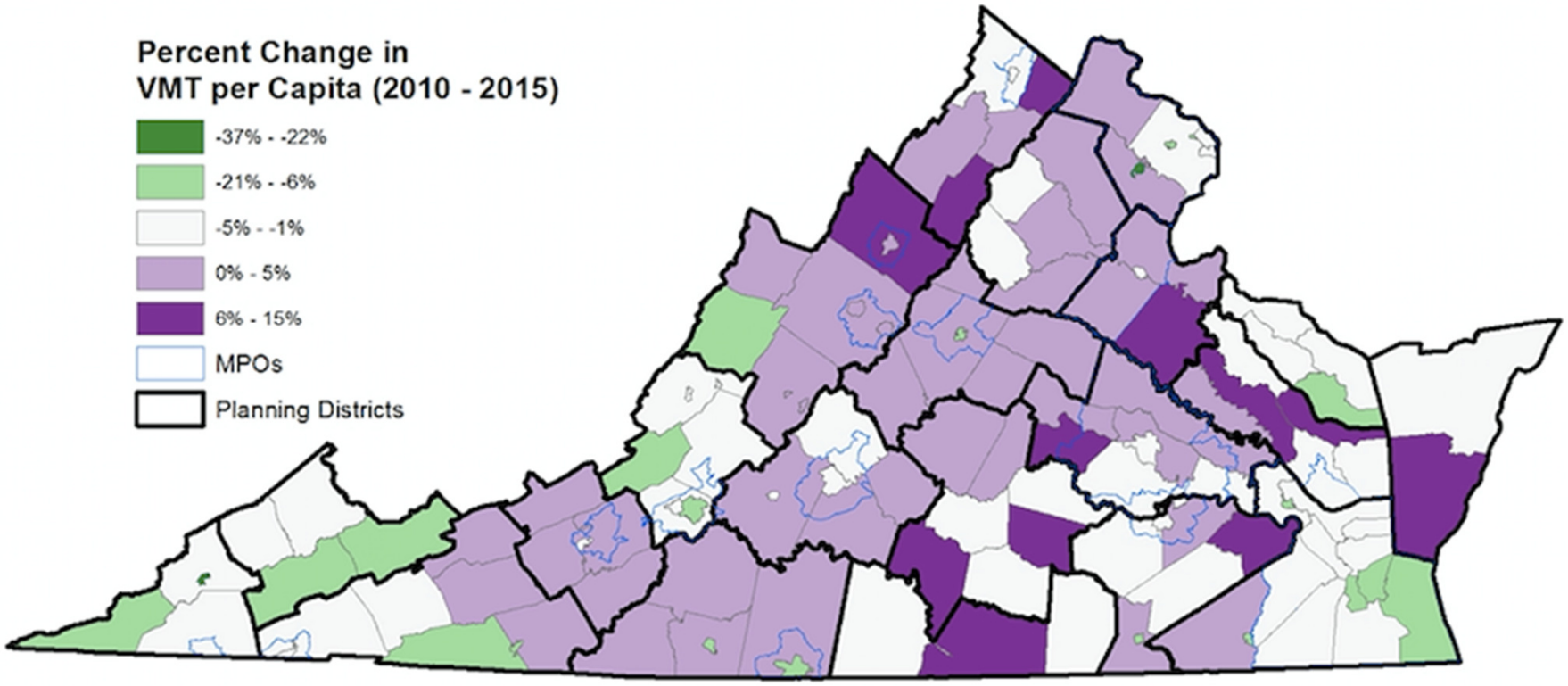
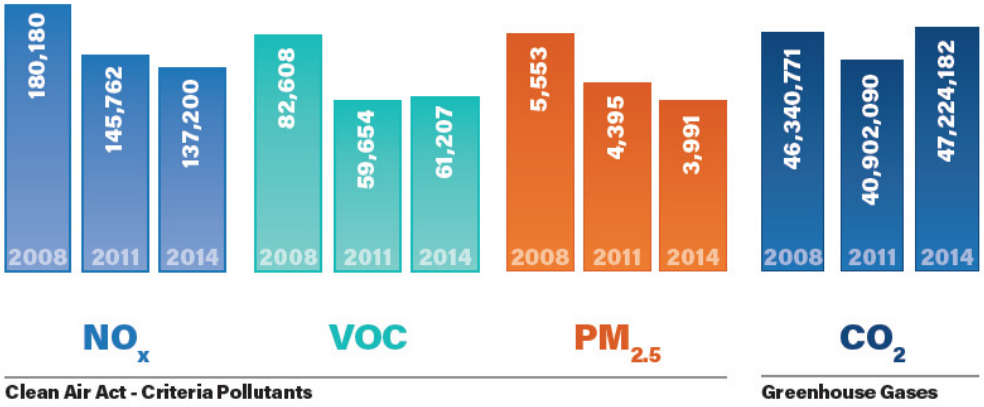
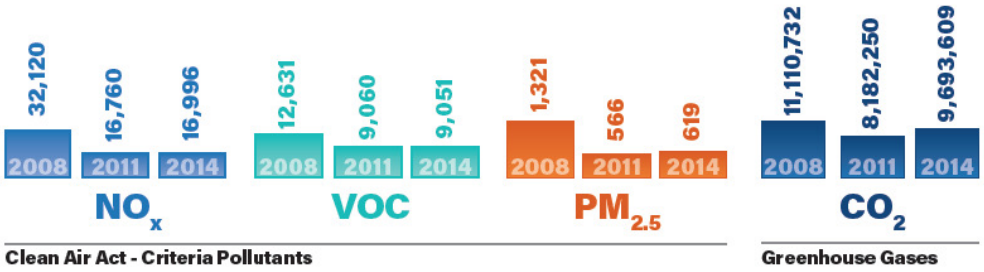


E.2 Reduce transportation related criteria pollutant and greenhouse gas emissions

Annual emissions of NOX, VOC, PM, and CO2 in tons.



NORTHERN VIRGINIA NON-ATTAINMENT AREA



E.2 Reduce transportation related criteria pollutant and greenhouse gas emissions

Trend Showing Improving Performance with Challenges

Performance Measure:

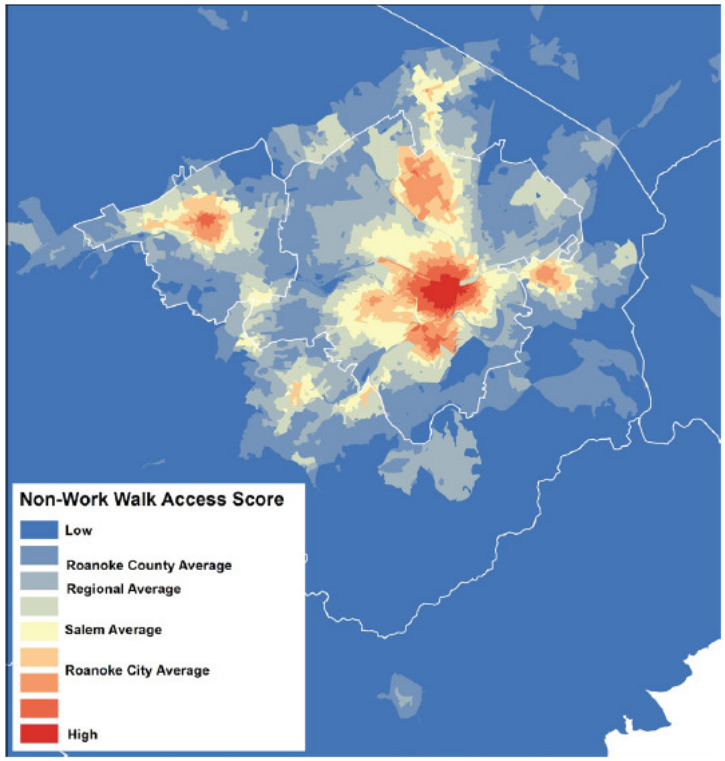
- Annual emissions of NOX, VOC, PM, and CO2 in tons.

Source: EPAs triennial National Emissions Inventory

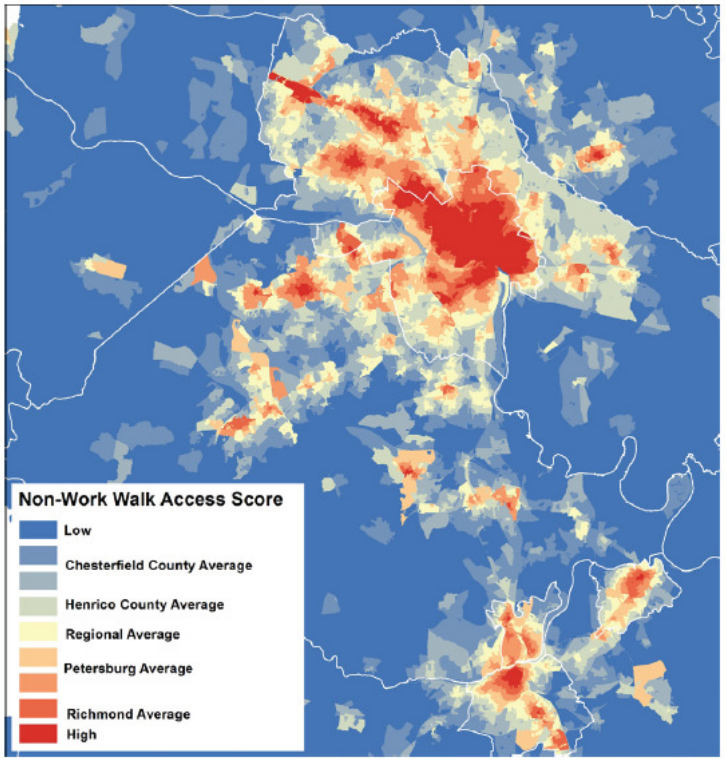
- **Emissions decrease across most criteria pollutants from 2011 through 2014, however show increases for greenhouse gases.**
- **Consistent with the National Emissions Inventory, this measure will next be updated in 2018 for CY 2017.**

E.3 Increase the number of trips traveled by active transportation (bicycling and walking)

Non-Work Walk Access Score – Roanoke Region



Walk Non-Work Access Score – Richmond Region



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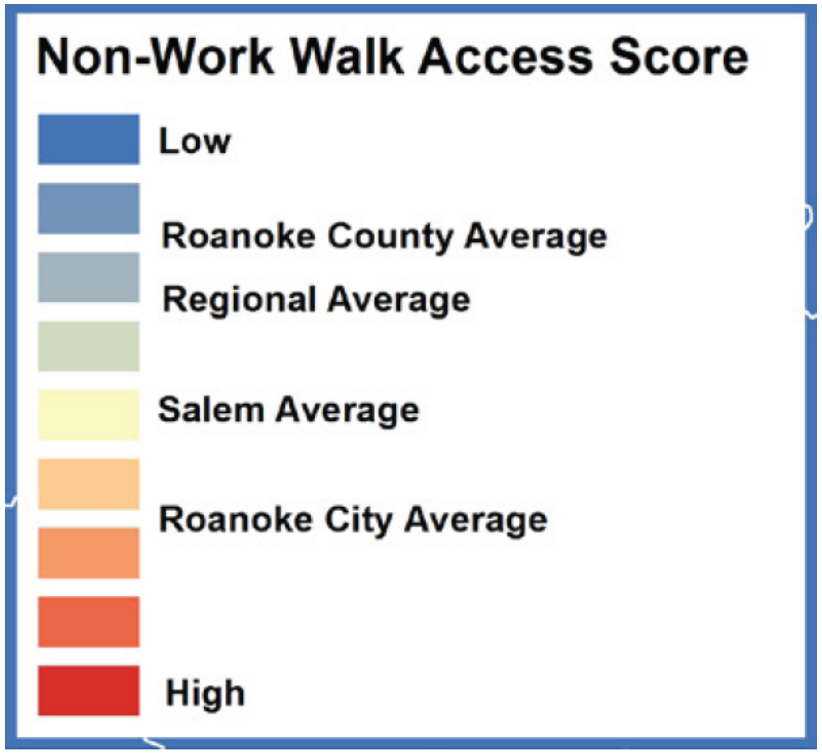

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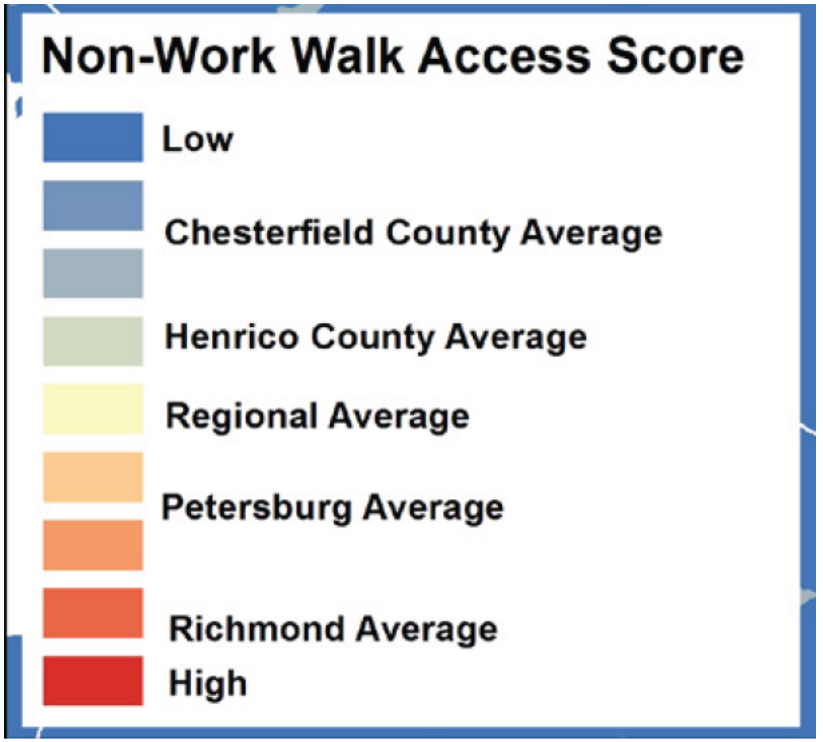

E.3 Increase the number of trips traveled by active transportation (bicycling and walking)

Estimated active transportation (bicycling and walking) trips.

Northern Virginia (Core) **31**

Hampton Roads Region **16**

Richmond Region **14**

Roanoke Region **13**

Northern Virginia (Outer) **12**

Lynchburg **5**

Arlington County **64**

Falls Church **55**

Alexandria **48**

Richmond City **40**

Norfolk **30**

Manassas **29**

Roanoke City **23**

Fairfax County **22**

Portsmouth **18**

Petersburg **18**

Hampton **16**

Salem **16**

Virginia Beach **15**

Lynchburg **14**

Henrico County **13**

Prince William County **10**

Fauquier County **6**

Chesterfield County **5**

Campbell County **3**

Target Setting Best Practices

- **Use baseline data, information on possible strategies, resource constraints, and forecasting tools to:**
  - Establish a quantifiable level of performance to achieve within a specific time frame
- **Requires consideration of policy changes and VTrans recommendations**
- **Identify risk factors including items outside of the control of the Board, VDOT and DRPT**

Target Setting Best Practices

- **Examples of policies that may impact future targets**
  - **Access management (economic competitiveness, safety)**
  - **Vision zero (safety)**
  - **Urban development area planning grants (economic competitiveness, accessible and connected places, healthy communities and sustainable transportation)**

Next Steps on Target Setting

- Examination areas with poor and high levels of performance for the various measures
- Board consideration of Tier I VTrans Recommendations
- Identification of ‘gaps’ where policies may help address poor performance or preserve high performance
- Establish targets and process for tracking performance