

Appendix D: Working Group Meeting Materials

SHRP2 Interstate 64 Corridor Plan

Shenandoah Piedmont area Collaborative Effort (SPaCE)

Project Introduction and Overview

November 18, 2016



Project Study Area

- I-64 from mile marker 87 to mile marker 118 (Charlottesville to Staunton)
- US-250 from the I-81 Interchange to the Charlottesville US250/29 Bypass
- CSX Buckingham Branch, Amtrak from Charlottesville to Staunton



Project Funding

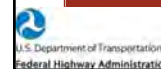
Project Funding

- Grant funding provided by Federal Highway Administration (SHRP2 Solutions Program)
- \$100,000 in federal funds
- CA-MPO \$70,000
- SAW-MPO \$30,000
- CA-MPO providing project management and oversight





SHRP2

- Strategic Highway Research Program (SHRP2)
 - Authorized under SAFETEA-LU
 - Funds innovation research and pilot projects that address state and local challenges
 - Improving the way transportation plan, operate, maintain and ensure safety on Americas roadways






Capacity 

 **PlanWorks**
Better planning. Better projects.

Plan Works

- PlanWorks: Better planning. Better projects. (C01)
 - Web based decision support tool
 - Supports and improves collaborative decision making
 - Built around key decision points in the project, LRTP, & planning proces
 - Provides a flexible roadmap for project planning and stakeholder involvement

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Plan Works

Corridor Planning Toolkit

- The Decision Guide streamlines the transportation process by systematically building in collaboration. It was developed using examples of successful practice and with input from all partners in transportation decision making.
- The Decision Guide was developed from 23 in-depth, detailed case studies (Including the CA-MPO 2040 LRTP TCAPP Process)

Corridor Planning

COR.1 Assess Scope of Corridor Planning Process	COR.2 Assess Problem Statement and Objectives	COR.3 Approach Goals for the Corridor	COR.4 Identify Stakeholders and Sources of Information	COR.5 Assess Evaluation Criteria, Methods and Resources	COR.6 Assess Planning Alternatives	COR.7 Select Preferred Solution Set	COR.8 Assess Evaluation Criteria, Methods and Resources for Construction of Project	COR.9 Select Alternatives for Implementation
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Project Scope

Scope

1. Open a dialog with interests in the I64 Corridor
2. Build an understanding of the issues through collaborative discussions and by engaging the experts
3. Use transportation performance measure to identify deficiencies in the corridor
4. Identify ways to improve collaboration and communication on issues of governance, maintenance and project identification
5. Document lessons learned and produce a final document that outlines deficiencies and concept level solutions

Project Activities

Project Activities

- Multi-agency and jurisdiction working group
- Joint MPO meetings (SAW-MPO CA-MPO)
- Data collection
- Needs assessment
- Draft MOU's
- Draft Corridor Study Results and Lessons Learned

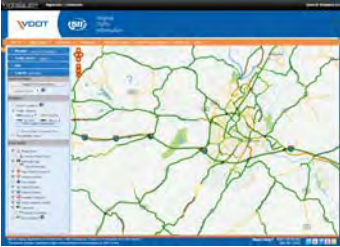
Working Group Meetings

Meeting 1 (Nov)	<ul style="list-style-type: none"> • Scope and problem statement • Project Goals and process 	Public Open House Dec 12
Meeting 2 (Jan)	<ul style="list-style-type: none"> • Goals • Public Safety 	
Meeting 3 (Mar)	<ul style="list-style-type: none"> • Evaluation Criteria • Economic Development/ Accessibility 	Joint MPO Meeting
Meeting 4 (May)	<ul style="list-style-type: none"> • Identify Hotspots • Environmental 	
Meeting 5 (Jul)	<ul style="list-style-type: none"> • Congestion and traffic • Review problem areas 	Joint MPO Meeting
Meeting 6 (Aug)	<ul style="list-style-type: none"> • Lessons Learned • Recommendation of problem areas & next steps 	Public Open House


Preliminary Data

Data

- Highway performance related measures
 - AADT
 - Truck Traffic
 - Crashes
- Demographics
 - Commuting patterns
 - Incomes



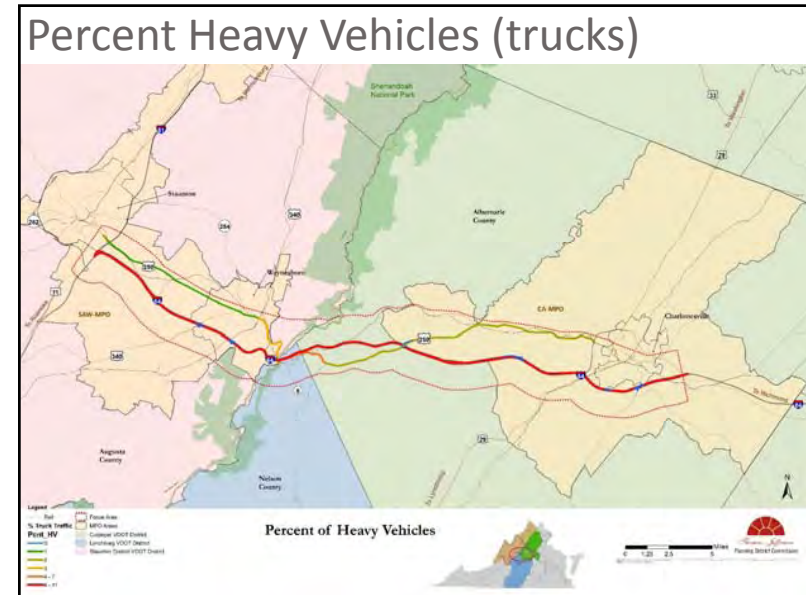
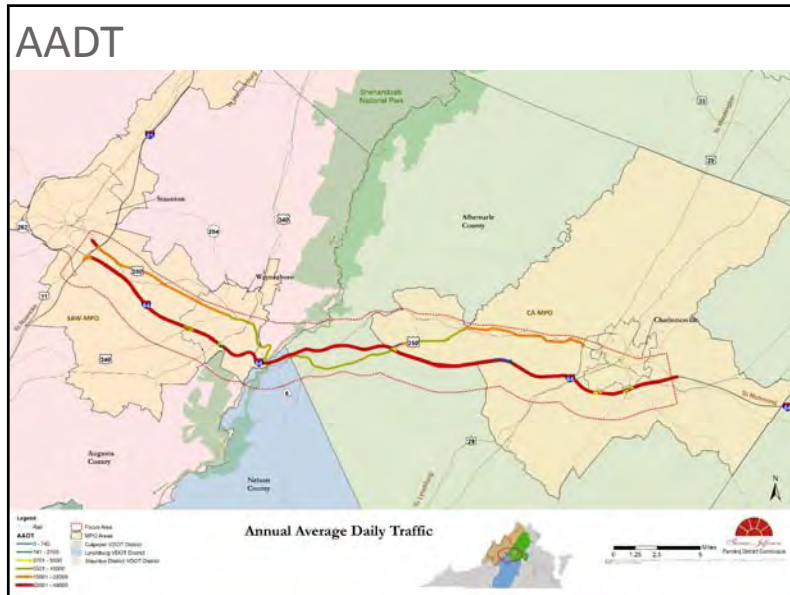
Existing Projects



Existing LRTP, RLRP, and SMART SCALE Projects

Legend

- Transit Area
- Smart Scale Project
- LRTP/RLRP
- CA-MPO LRTP
- TMDL/SMART



Crashes

- Eastbound I-64 sees delays as crews clean up crash The Daily Progress staff reports. Nov 14, 2016 Accident is about a mile east of the Route 20 interchange.
- Crashes clog I-64 eastbound The Daily Progress staff reports. Nov 7, 2016 At least four crashes reported eastbound around Ivy in the last hour.
- Both lanes of eastbound I-64 now open at crash scene near Ivy exit The Daily Progress staff reports. Nov 2, 2016 Traffic is beginning to move smoother through the site.
- Eastbound I-64 crash is cleared and traffic slowly getting back to normal The Daily Progress staff reports. Oct 25, 2016 Crash is in the left lane. Traffic is crawling through the site.
- Crash cleared, traffic getting back to normal on eastbound I-64 near Ivy The Daily Progress staff reports. Oct 18, 2016 Third crash on the interstate in just over 24 hours.
- I-64 crash injures 3, ties up traffic The Daily Progress staff reports. Oct 17, 2016 State police said at least one of the injured had serious injuries, but no further information on their conditions was available Monday evening.
- I-64 traffic crash cleared at Ivy, all traffic lanes open The Daily Progress staff reports. Oct 10, 2016 A crash on Interstate 64 involving a camper-style vehicle closed westbound lanes of the highway closed at mile marker 114 near the Ivy exit.

Analyzing Crashes: 2011-2016

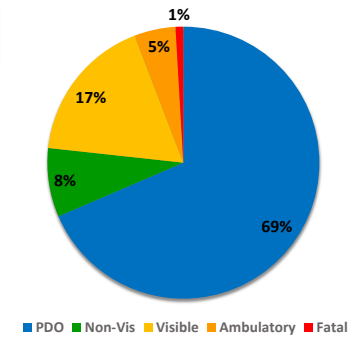
- ❑ 3,140 total crashes
- ❑ Rear end collisions are the most prevalent
- ❑ 30 fatalities
- ❑ Average number of crashes per year is 523
- ❑ Average of 1.5 crashes per day
- ❑ 25% occur during peak afternoon commute times
- ❑ Fridays have slightly higher number

Crash Type

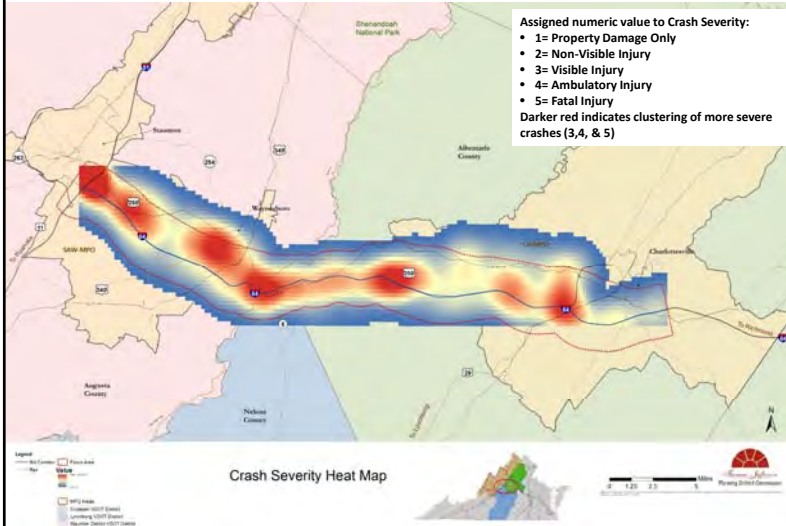
Collision Type	Number	Fatality	Serious Injury	Serious or Fatal % of Total
Rear End Collision	1023	3	31	3%
Fixed Object Off Road	687	6	44	7%
Angle	535	8	27	7%
Deer or Other Animal	466	0	2	.5%
Sideswipe (Either Direction)	222	2	6	4%
Non-Collision	72	2	17	26%
Head On	54	3	10	24%
Other	36	1	3	11%
Fixed Object In Road	19	1	0	5%
Pedestrian	18	3	6	50%
Backed Into	8	0	0	N/A
TOTAL	3140	29	146	

Crash Severity

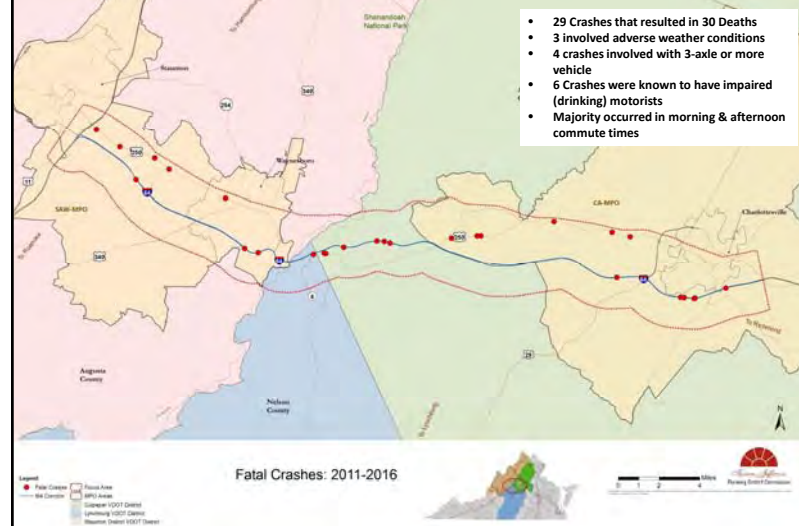
Severity	Number	Percentage of Total
Property Damage Only	2152	69%
Non-Visible Injury	257	8%
Visible Injury	548	17%
Ambulatory Injury	154	5%
Fatal Injury	29	1%



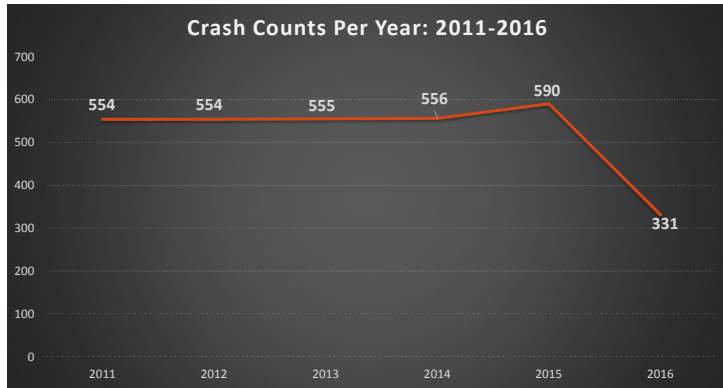
Severity Heat Map: 2011-2016



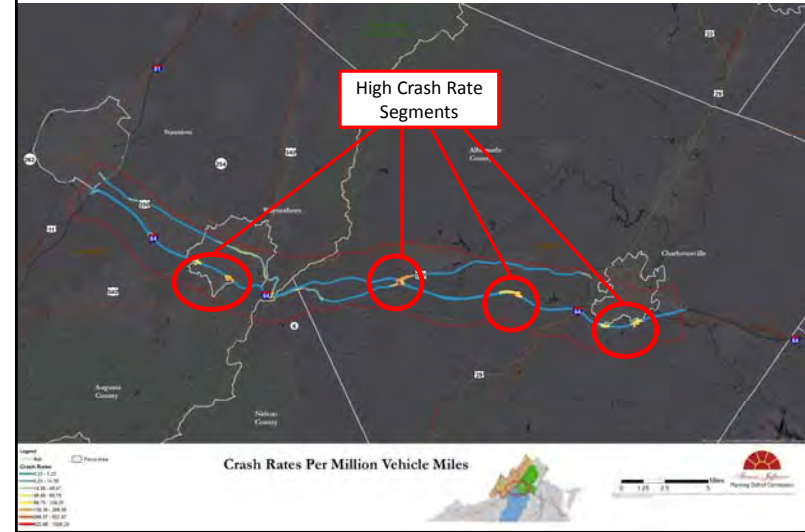
Fatal Crashes: 2011-2016



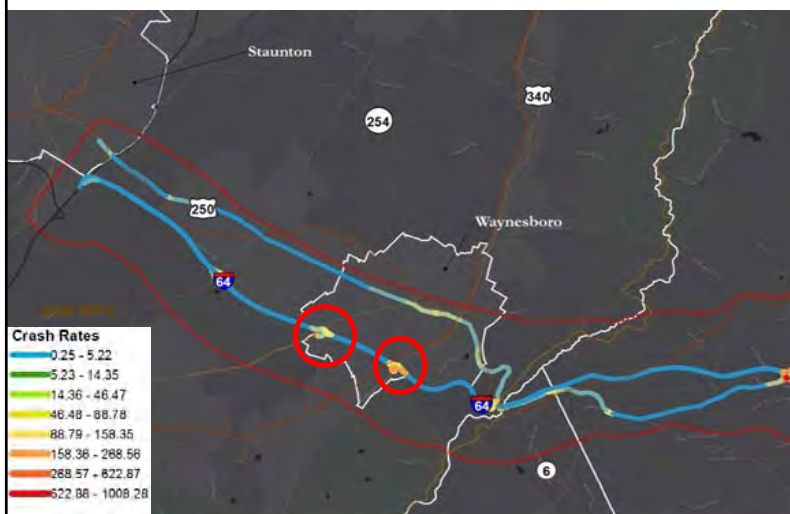
Crash Counts Per Year



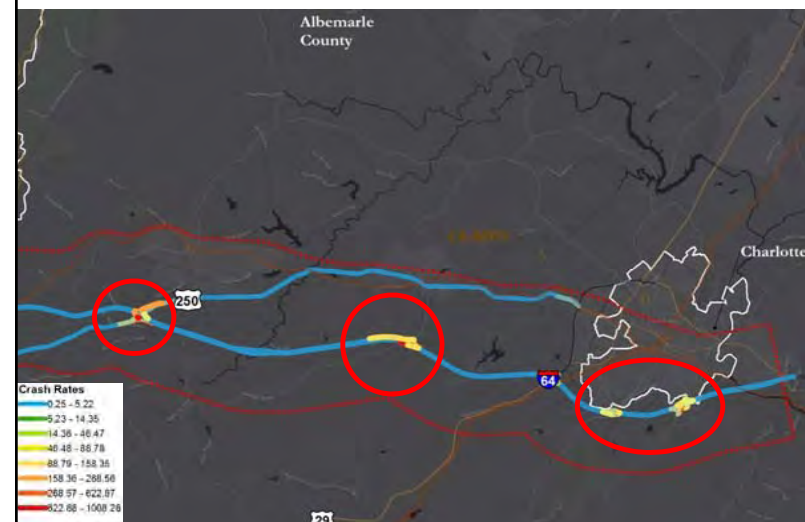
Crash Rates Per One Hundred Million Miles: 2011-2016

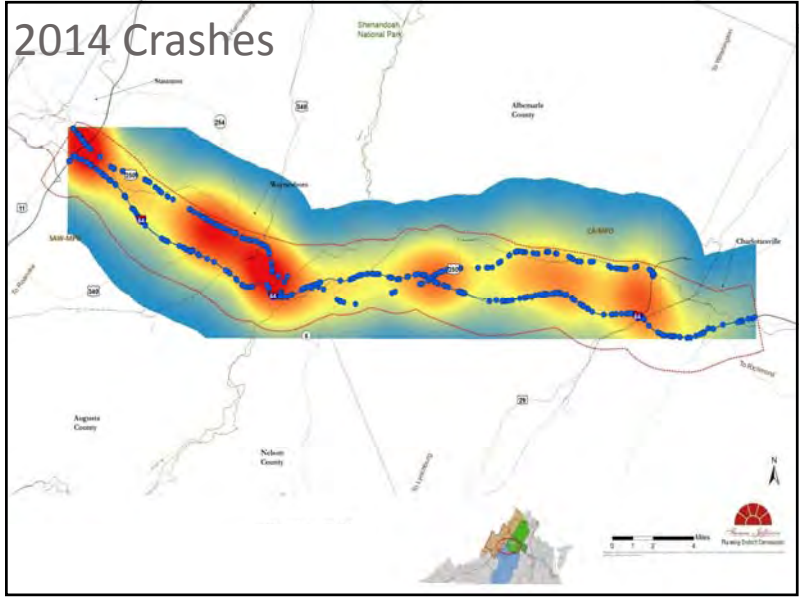
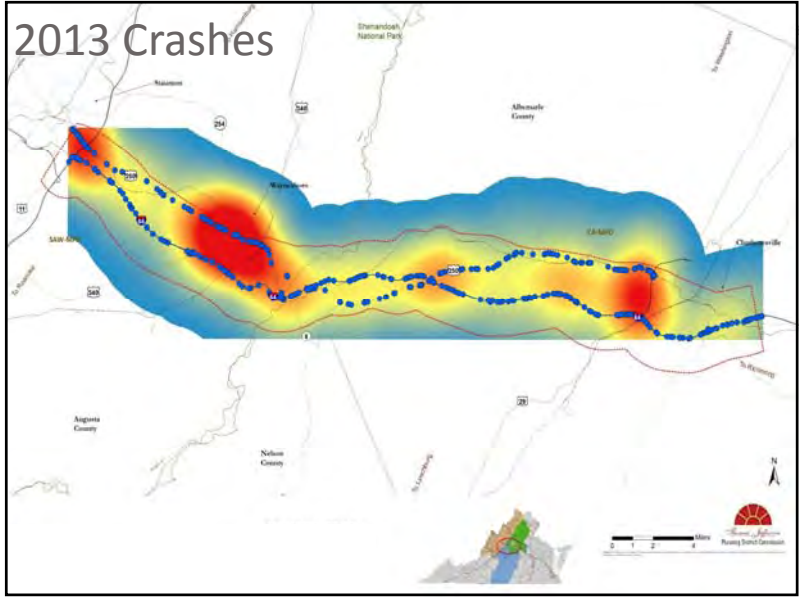
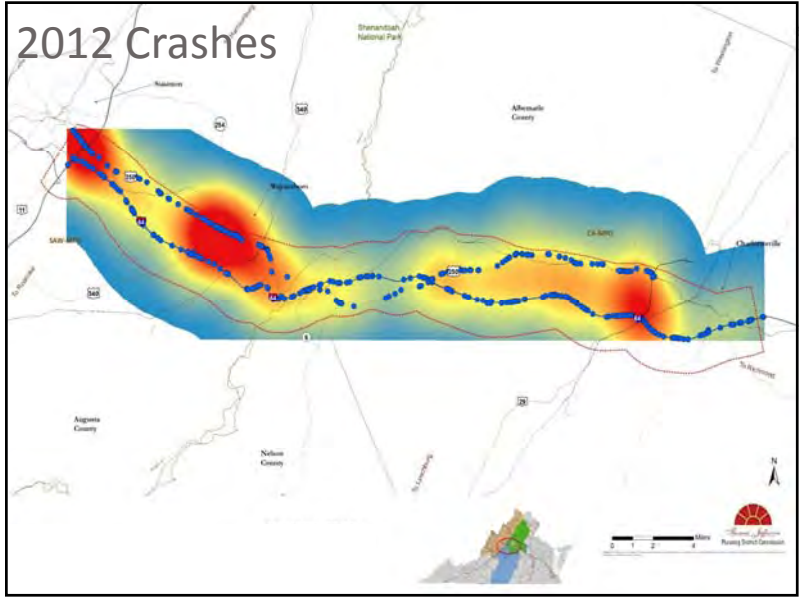
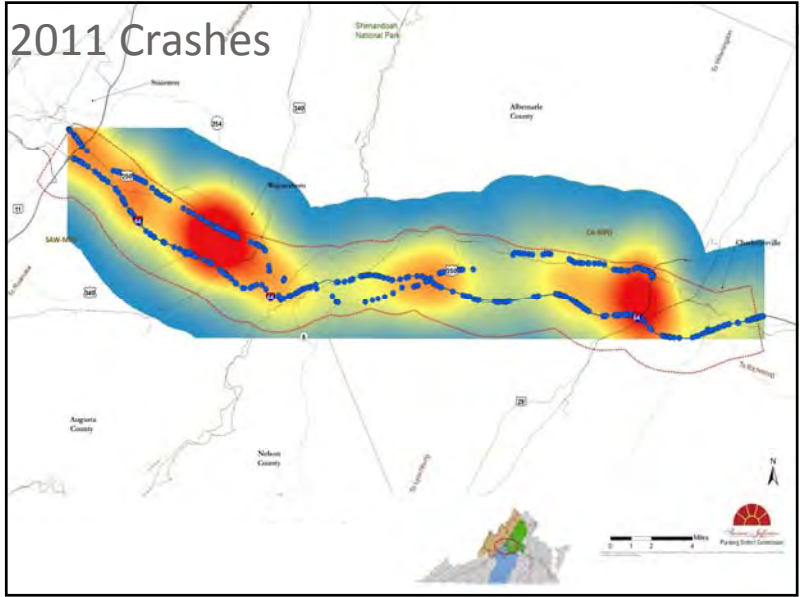


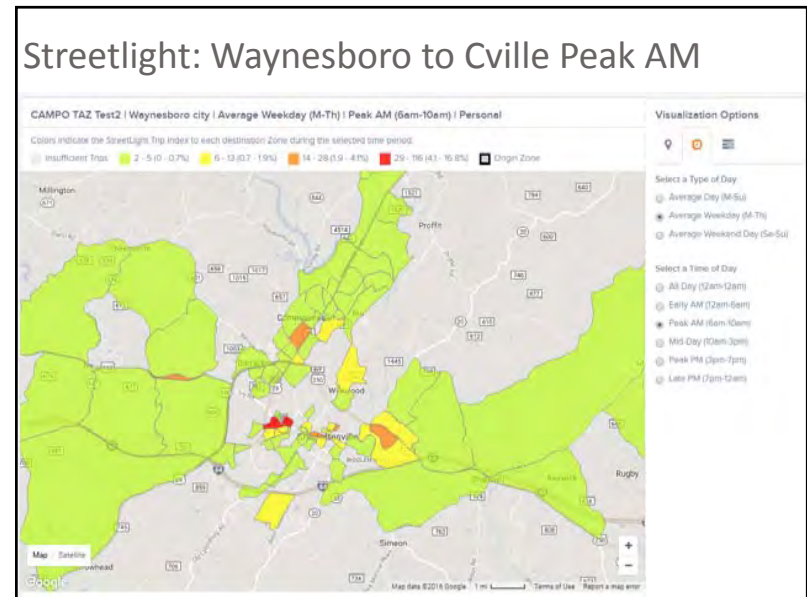
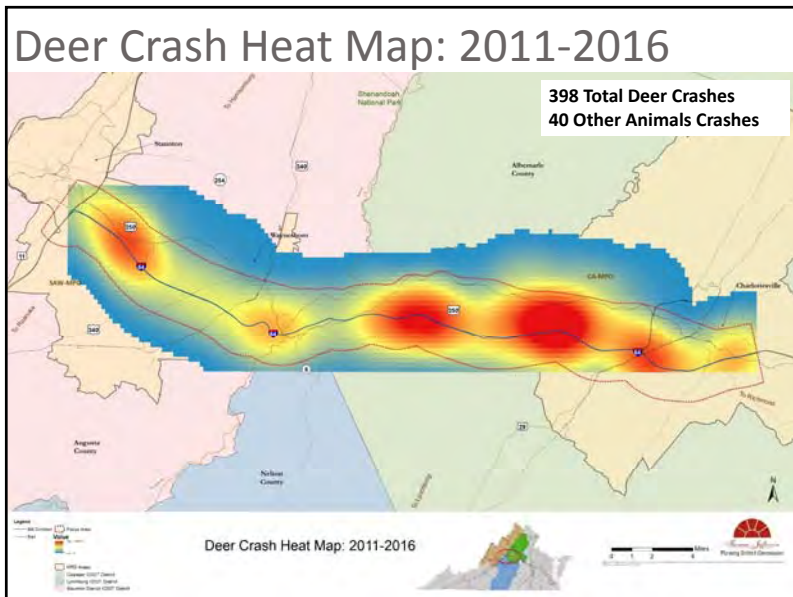
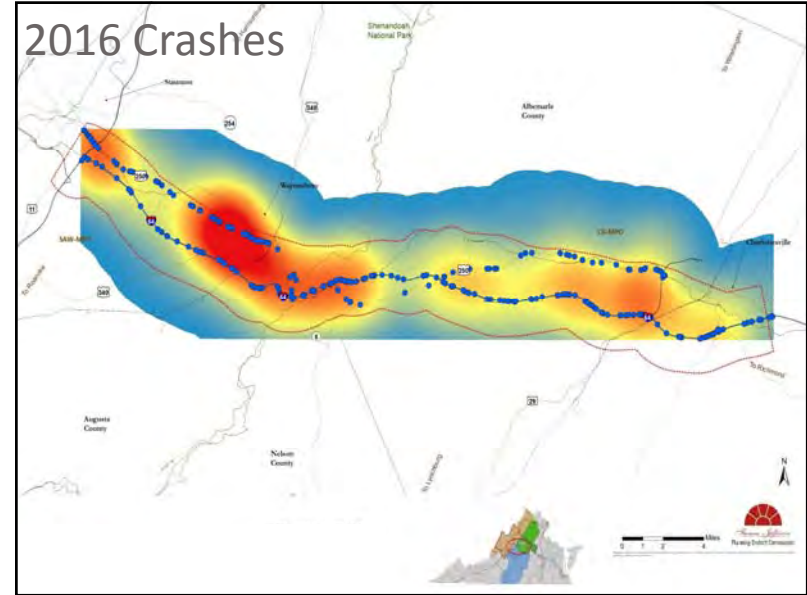
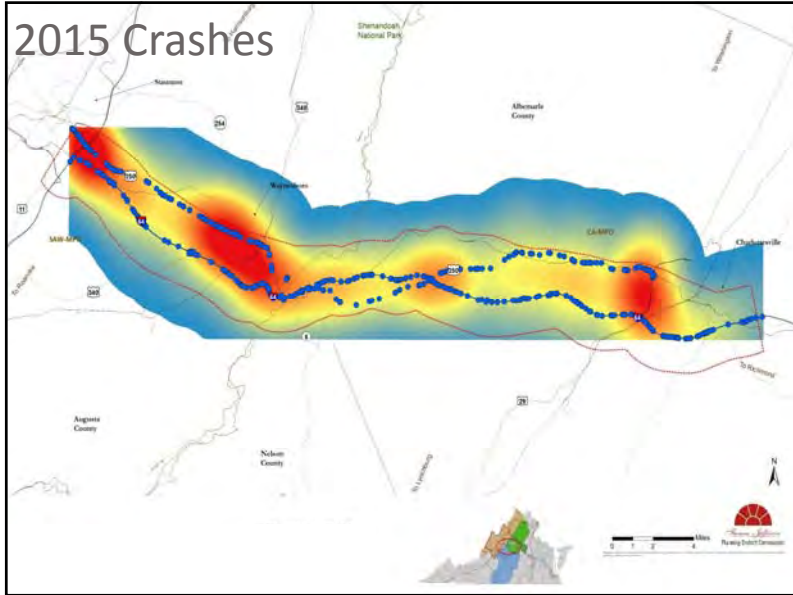
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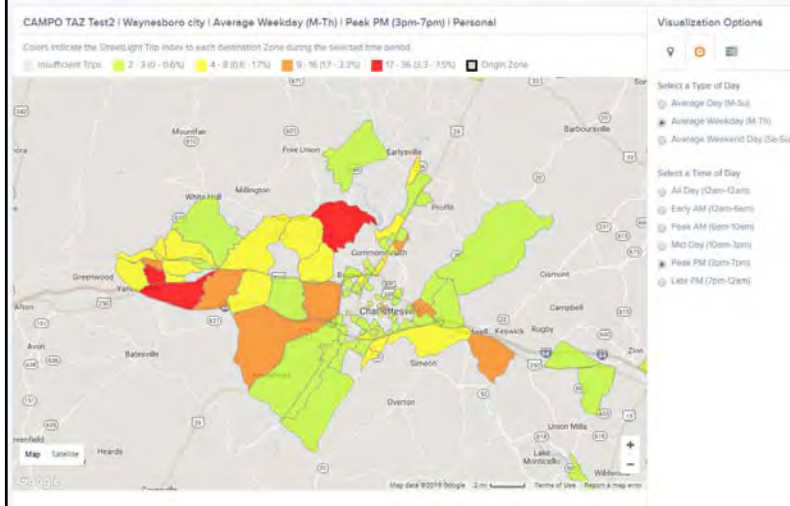
Crash Rates Per One Hundred Million Miles: 2011-2016



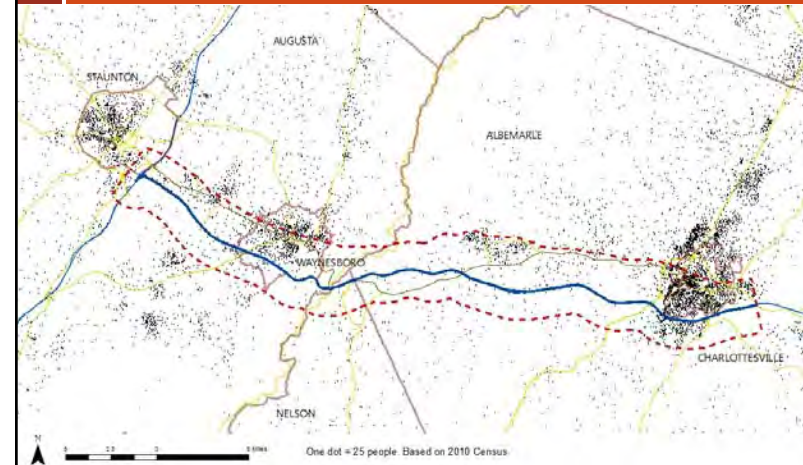




Streetlight: Waynesboro to Cville Peak PM

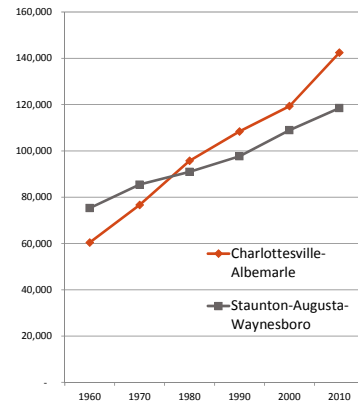


Demographics

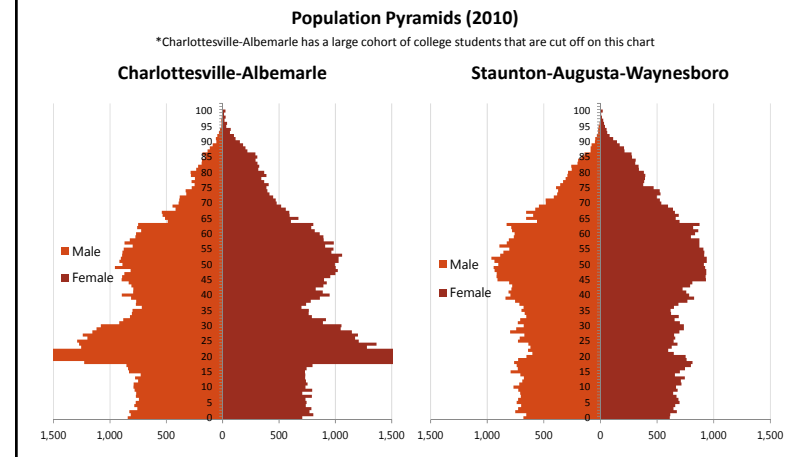


Community Profile: Population Change

Geography	2015 Pop	2010-15 Growth Rate
Virginia	8,382,993	4.8%
C-A	153,261	7.6%
Charlottesville	48,210	10.9%
Albemarle	105,051	6.1%
SAW	121,218	2.3%
Staunton	24,542	3.4%
Augusta	74,881	1.5%
Waynesboro	21,795	3.8%

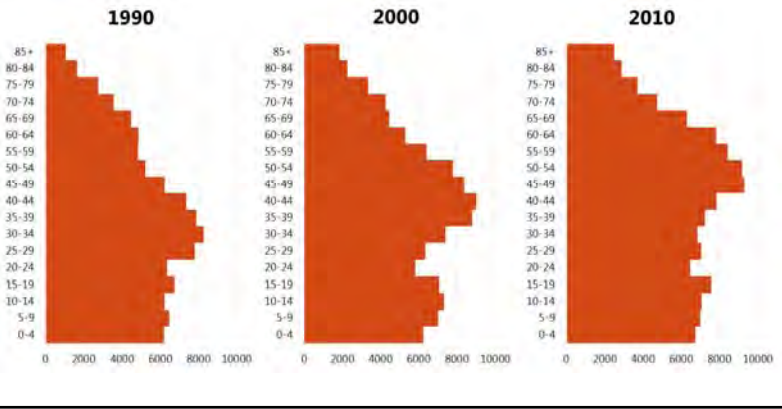


Community Profile: Age



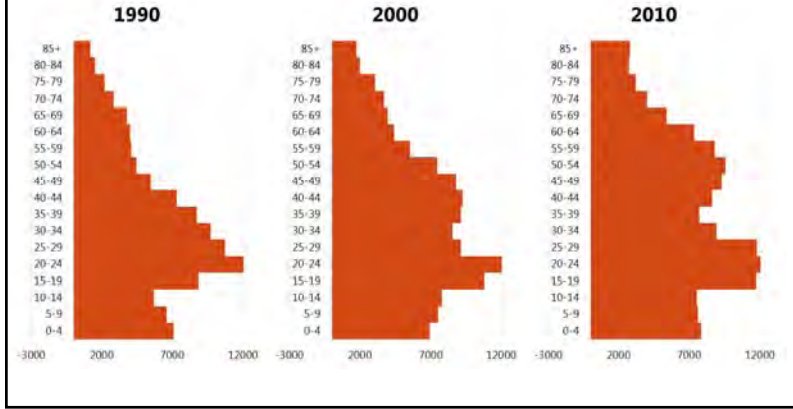
Community Profile: Age

Age Structure in Staunton, Augusta, and Waynesboro



Community Profile: Age

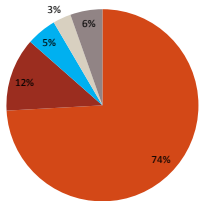
Age Structure in Charlottesville and Albemarle



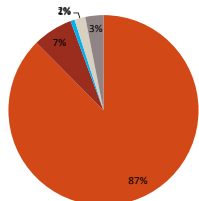
Community Profile: Race and Ethnicity

Both regions are more White than the state as a whole, with the Valley being significantly more White

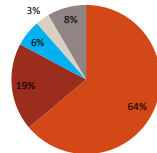
Charlottesville-Albemarle



Staunton-Augusta-Waynesboro



Virginia

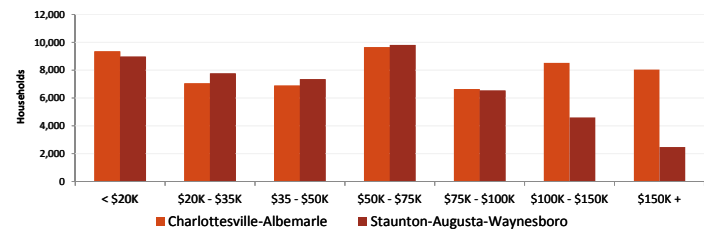


- Non-Hispanic White
- Non-Hispanic Black
- Asian
- Other (including multiracial)

Community Profile: Income

- Median household income in Charlottesville is significantly higher than in the Valley
- The income spread is similar in both communities across most income brackets.
- Major difference is presence of about 10,000 additional households earning \$100,000 or more in Charlottesville/Albemarle

Median Household Income	
Charlottesville Metro Area	\$59,189
Staunton-Wboro Metro Area	\$49,262



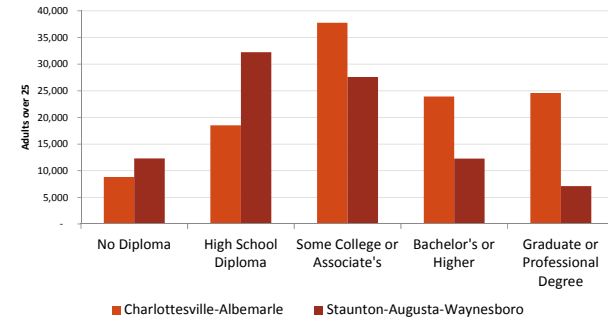
Community Profile: Poverty & Employment

General Economic Indicators

Geography	Median Household Income	Poverty Rate	Non-student Poverty Rate	Unemployment Rate (BLS)
Charlottesville Metro Area	\$59,189	15.2%	10.2%	3.9%
Charlottesville	\$47,218	27.5%	15.1%	3.7%
Albemarle	\$67,958	9.7%	8.4%	3.9%
Staunton-Waynesboro Metro Area	\$49,262	13.2%	13.2%	4.3%
Staunton	\$39,982	18.2%	17.8%	4.4%
Augusta	\$54,018	9.3%	9.4%	4.1%
Waynesboro	\$45,499	20.7%	20.8%	4.7%

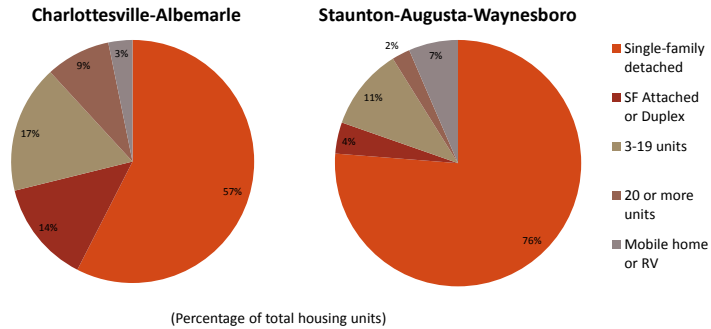
Community Profile: Educational Attainment

- The contrast in educational attainment is more dramatic than the contrast in income

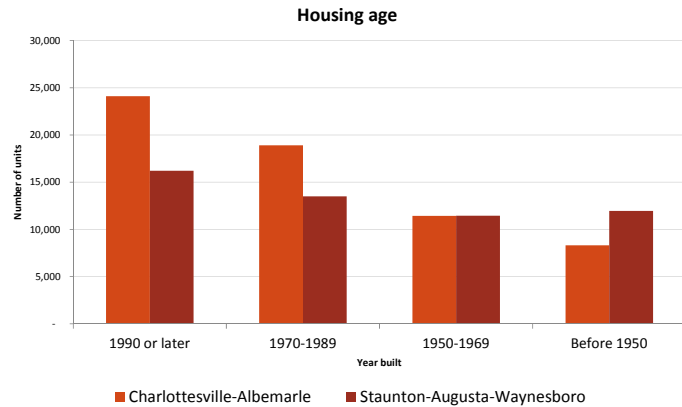


Community Profile: Housing

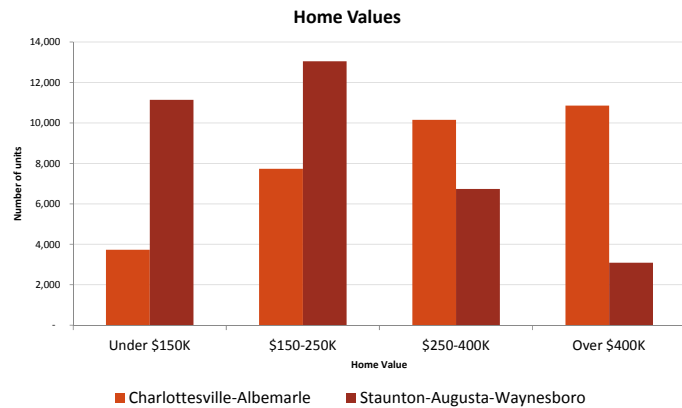
- The dominant form of housing in both regions is single-family detached. Charlottesville has more multi-family.



Community Profile: Housing



Community Profile: Housing



Community Profile: Migration

- County-to-county migration numbers are unreliable for any single year, but it looks like Staunton/Augusta/Waynesboro has a net gain of about 200-300 people a year from the Charlottesville/Albemarle area
- Staunton/Augusta/Waynesboro loses young adults, gains families and older migrants
- Charlottesville/Albemarle has huge in-migration of young adults, loses them in their 30's and 40's, has small gains among older age groups

QUESTIONS

Thomas Jefferson Planning District
Commission

401 East Water Street
Charlottesville, VA 22902

Wood Hudson
Senior Planner

Resources: <http://campo.tjpd.org/>



SHRP2 I-64 Corridor Study Working Group Meeting #1

Friday November 18, 2016

1:00 PM to 3:00PM

Location: TJPDC Water Street Center, 407 East Water Street, Charlottesville, VA 22902

Agenda

1. Introductions (40 minutes)

- Project team staff will lead the working group through brief introductions.

2. Project Overview (40 minutes)

- Project team staff will provide PowerPoint presentation outlining the scope and goals for the corridor. Additionally, staff will provide an overview of existing conditions in the corridor. This will include community profiles and transportation performance measures.

3. Work Session: Identification of key issues and concerns in the corridor

- ***Small groups breakouts (20 minutes)***

Working Group participants will break up into small groups where they will be asked to discuss amongst themselves and identify key issues that should/could be researched and addressed in the corridor study. A staff member will be on-hand to facilitate the discussion

- ***Group work session (20 minutes)***

PDC staff will lead the working group through a facilitated discussion about issues identified in the small group work session.

4. Next meeting topics will be

- *Public Safety*
- *Goals for the corridor*

5. Upcoming meeting dates

- *Public Open House December 12 from 5:00-7:00pm (Water Street Center, 407 E. Water Street)*
- *Working Group Meeting January Exact date/time TBD (Virginia Regional Transit, 51 Ivy Road Fishersville, VA)*

Emergency Services Overview

164 Corridor Study

Traffic Accident Facts

- In 1966, traffic crashes resulted in over 50,000 fatalities and the fatality rate was three times as high as it is today. If the extraordinary progress in improving highway safety had not been made since that time, over 120,000 people would have died last year and hundreds of thousands more would have suffered traumatic injury.
- Death and injury from traffic crashes continue to be among the most serious public health problems facing our country. Motor vehicle injuries constitute 99% of non-fatal transportation injuries and 94% of transportation deaths. The statistics for 1996 alone offer a grim reality: there were over 6.8 million crashes, in which over 41,000 were killed and another 3.5 million were injured. With yearly increases in travel and no improvement over our current safety performance, fatalities and injuries could increase by 50 percent by 2020.
- Motor vehicle crashes are the number one safety problem in American transportation. They account for 94 percent of transportation deaths and 99 percent of transportation injury. In 1996, 41,907 people were killed and 3,511,000 people were injured in police reported crashes. The lifetime economic cost of these crashes is over \$150 billion annually. The share borne by tax payers is staggering: the public pays 13 percent of the cost of injuries treated in an emergency department; 26 percent of the cost of injuries requiring hospitalization; and 48 percent of the cost of injuries treated in a rehabilitation hospital.
- Source NHTSA

Calls For Service

- Determined by cell tower location and sector
- Dispatched and coordinated by the PSAP with jurisdiction
- SAW agencies have access to common frequencies
- RIOS Interoperability for outside agencies
- Afton Mountain Communications Plan

Response

- Multi- Agency Coordination
 - Local, Regional, and State Resources
- Unified Command and NIMS
- Mutual Aid and Automatic Aid Agreements
- Regional MCI Plans
- Afton Mountain Incident Plan
- Tractor Trainer Accidents/Hazmat

Factors Impacting Response

- Heavy Traffic/Time of Day
- Weather
- Blocked Lanes of Travel
- Access/ Egress Issues at entrances and exits
 - Discussed gates for Afton Mountain
- Blocked Shoulders
- European Model

Local Impacts

- Detours and Reroutes
- Closing the interstate
- Capacity of local roadways
- Displaced Motorists
- Towed Vehicle Storage

Resources

- Regional TOC
- Interstate Camera Access
- Programmable Message Boards
- TIMS Training
- Va. Highway Incident Management Group
- Regional Highway Incident Management Groups
- Regional Exercises
- VDOT Safety Service Patrols

Summary

- Coordinated Multi-Agency Response
- Regional Planning, Training, and Exercises
- All Players Must be Included
- Response to Interstate Accidents is Hazardous for Responders

Questions/Discussion

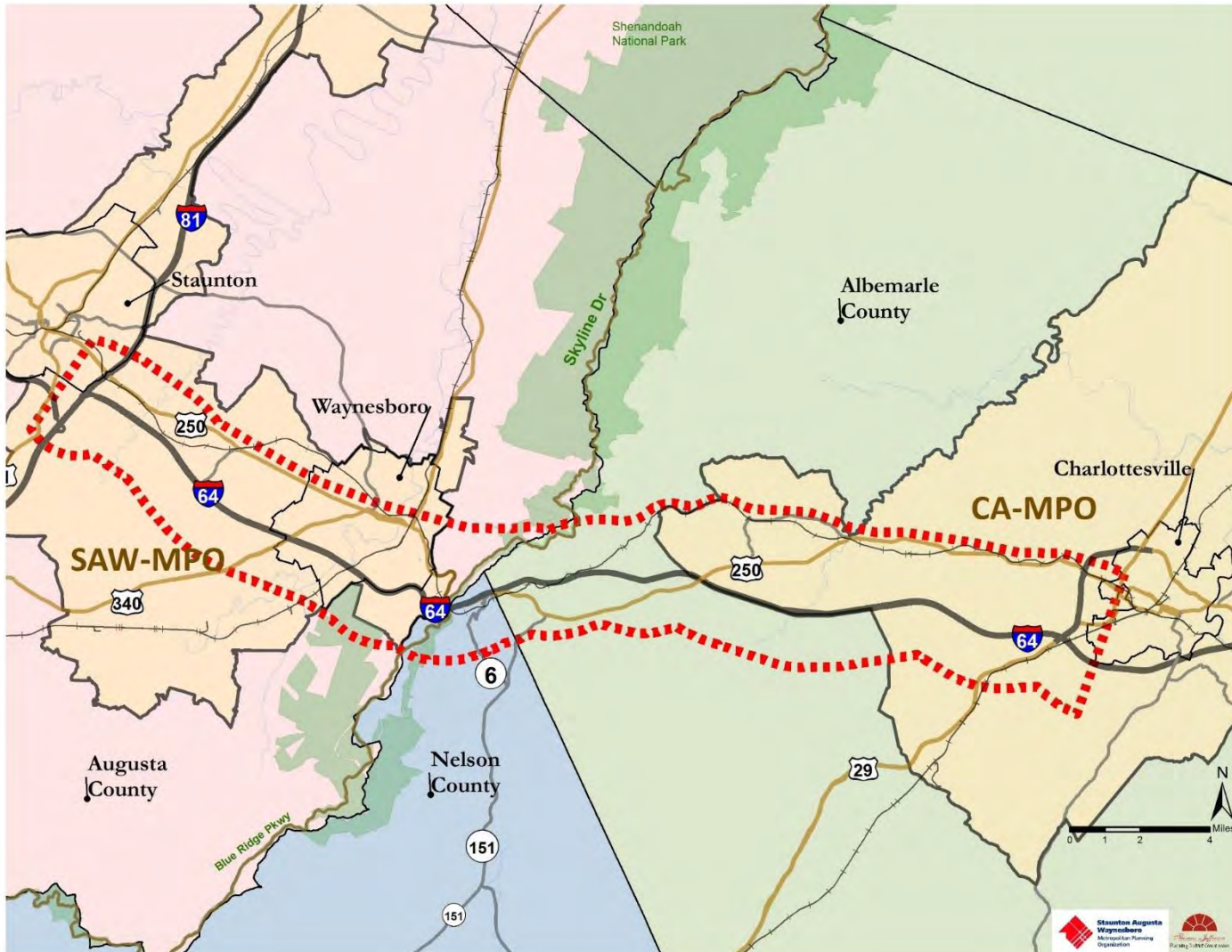
SHRP2 Interstate 64 Corridor Plan

Shenandoah Piedmont area Collaborative
Effort (SPaCE)

Working Group Meeting #2

January 31, 2017

Project Study Area

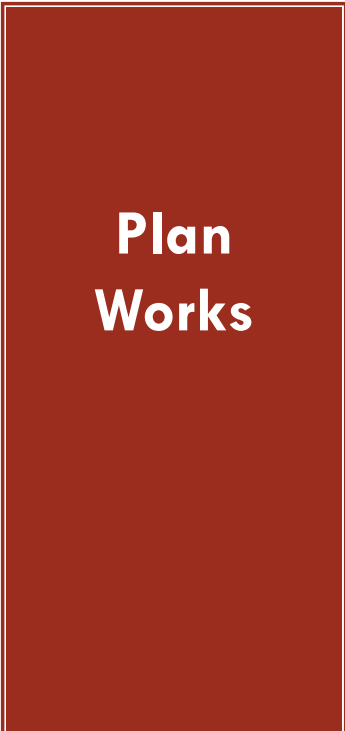




Plan Works


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Corridor Planning Toolkit

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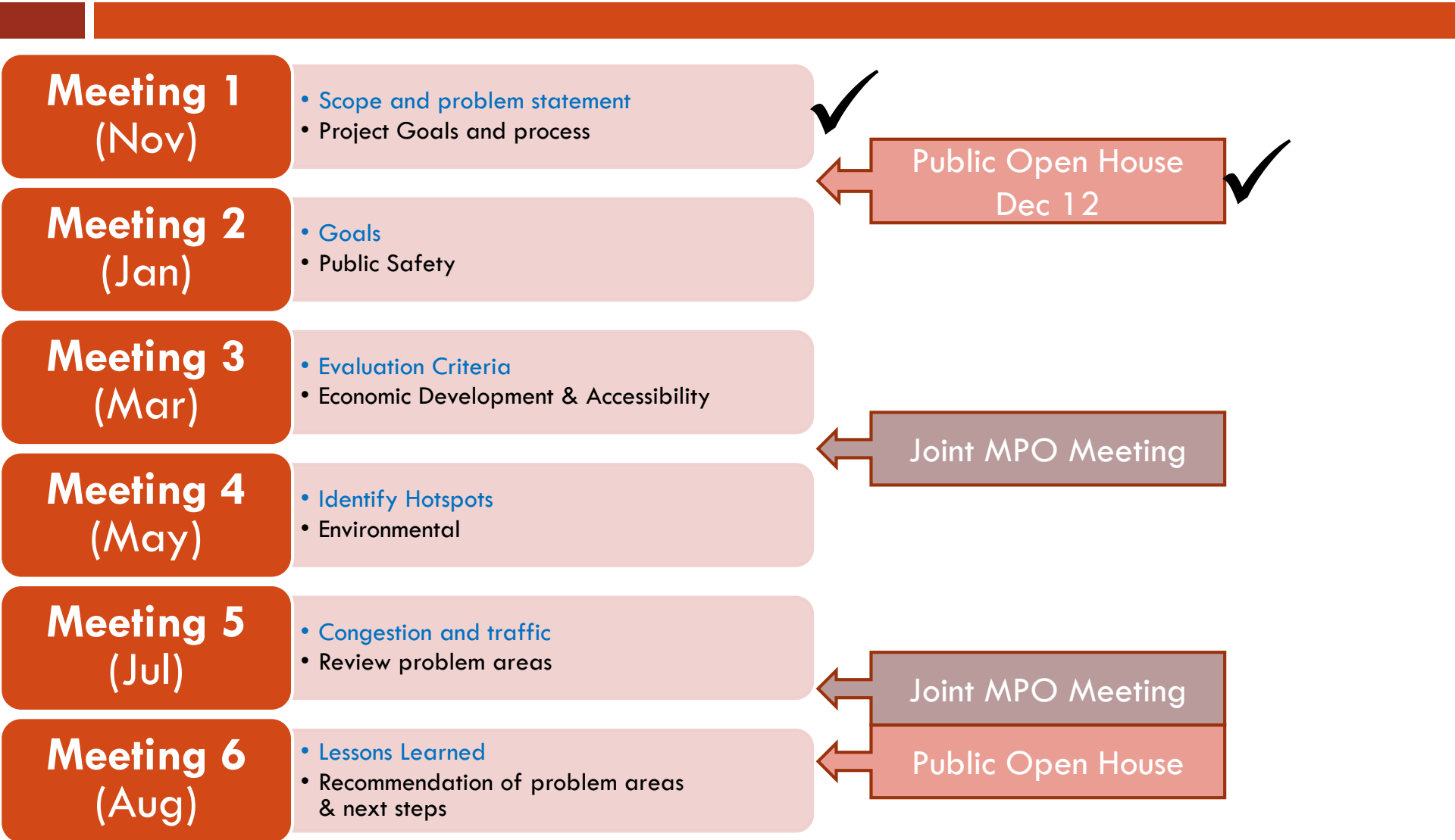
Corridor Planning								
 <p>COR-1 <u>Approve Scope of Corridor Planning Process</u> ✓</p>	<p>COR-2 <u>Approve Problem Statements and Opportunities</u> ✓</p>	<p>COR-3 <u>Approve Goals for the Corridor</u></p>	<p>COR-4 <u>Reach Consensus on Scope of Environmental Review and Analysis</u></p>	<p>COR-5 <u>Approve Evaluation Criteria, Methods and Measures</u></p>	<p>COR-6 <u>Approve Range of Solution Sets</u></p>	<p>COR-7 <u>Adopt Preferred Solution Set</u></p>	<p>COR-8 <u>Approve Evaluation Criteria, Methods and Measures for Prioritization of Projects</u></p>	<p>COR-9 <u>Adopt Priorities for Implementation</u></p>

Project Scope

Scope

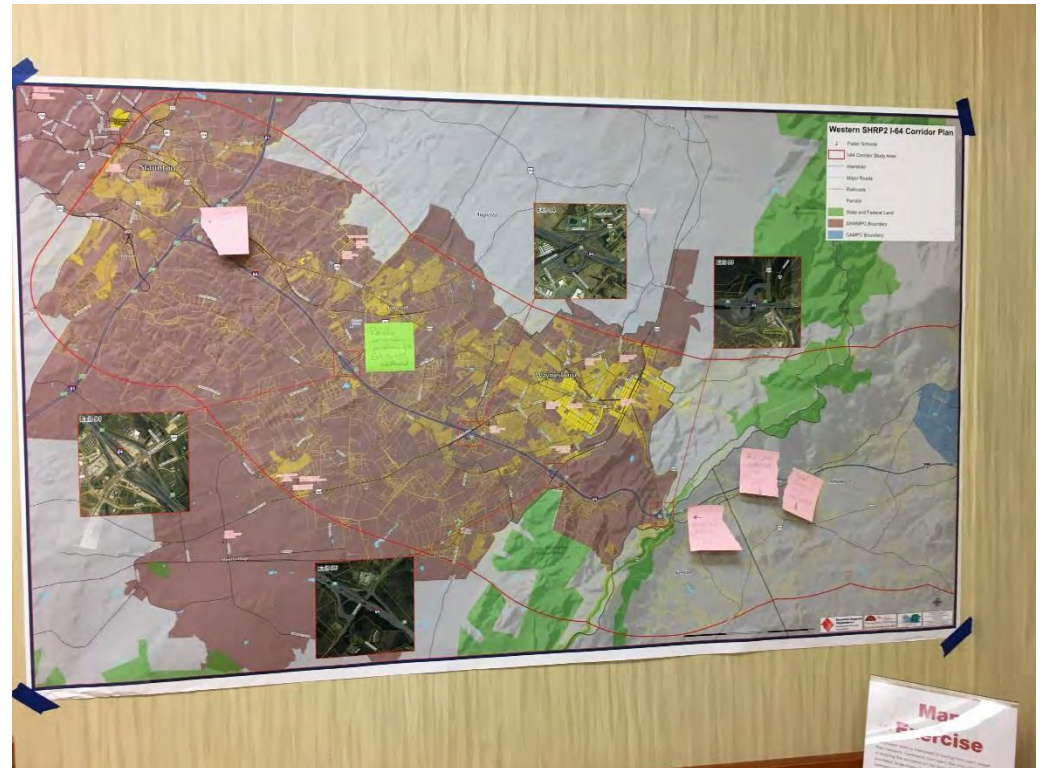
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5. Document lessons learned and produce a final document that outlines deficiencies and concept level solutions

Working Group Meetings



Public Open House

- ❑ Crozet Library
- ❑ 18 people attended and provided comments
- ❑ Comment cards
- ❑ Online survey
- ❑ Poster maps



Public Comments

- ❑ “Crozet growth volume on I-64 and 250 – plan for this growth?”
- ❑ Pointing to Routes 151 and 250 – “Need to address this intersection”
- ❑ Pointing to 250 on Afton Mountain – “Second eastbound lane on 250?”
- ❑ Pointing to I-64 (mm 100) Afton Mountain – “Have to address this.”
- ❑ “Rarely encounter problems from Exit 94 to I-81.”
- ❑ Pointing to I-64 and I-81 interchange – “Have to address this.”
- ❑ Pointing to area between mm 114 (after Sun Hill) and 118 – “SPEED and following too closely a big factor here!”
- ❑ Pointing to Sun Hill (just past mm 114) – “Add a truck climbing lane?”
- ❑ “Signal timing between 250 between Broomley and 29 needs addressing.”
- ❑ “Can VDOT stage the emergency vehicles on 64 to help clean accidents during rush hour more rapidly?”
- ❑ “Make transparent layovers for these maps to define crash ‘hot spots.’”

Public Survey Results

- The majority of respondents travel the corridor 5 or more times per week
- Most trips are commutes to and from work (46.7%), followed by leisure trips (33.3%)
- Safety was ranked as the highest priority for I-64 & 250, followed closely by congestion
- None of the respondents utilize commuter services (i.e. RideShare, Park & Ride lots, or transit)

Public Survey Results

Comments & Recommendations:

- ❑ Truck climbing or additional lanes on I-64 were
- ❑ Better bike and pedestrian infrastructure on 250
- ❑ More signage warning drivers of conditions
- ❑ Excessive speeds need to be addressed

COR-1

COR-1: Approve Scope and Process

First steps: coordinating partners and establishing formal lines of communications between groups that communicate infrequently. Evaluation of decision points and creating collaborative decision-making across multiple disciplines and tiers of government will be included.

Deliverables: Draft Scope to guide planning process; Aggregate data repository.

Outcomes:

- The geographical scope
- Technical Scope
- Web Data Repository

<http://campo.tjpd.org/i64-corridor/>

COR-1 Outcomes

Geographic Scope



COR-1 Outcomes

- The Technical scope is based on meeting the regional need of improving the safe efficient movement of **goods** and **people** through the study corridor. Due to the corridor being super-regional in nature the technical aspects of the corridor study focus heavily on improving inter-governmental and inter-agency communication, coordination, and facility management.
- Data Repository A project specific webpage has been set up within the Charlottesville Albemarle MPO domain. <http://campo.tjpd.org/i64-corridor/>. The site includes information about the project, an interactive map, and a growing inventory of corridor related studies GIS and reports.

COR-2

COR-2: Approve Problem Statements/Opportunities

SPaCE will engage facilitated collaborative meetings, focused stakeholder groups, public input sessions and multi-media engagement to identify a common understanding of the issues and seek partner and stakeholder identification of problems and opportunities.

Deliverables: Work towards agreement among stakeholders on the deficiencies and potential opportunities. Staff collaborating with the Working Group have identified the following deficiencies:

COR-2 Deficiencies

- **Safety**
 - Crashes
 - Speed
 - Reckless driving
- **Peak hour congestion**
 - Congestion at key exits
 - Traffic at Afton caused by slow moving heavy vehicles
 - Commuter demand
 - Through traffic demand
- **State of good repair**
 - Roadway pavement conditions
- **Accessibility**
 - Transit
 - Carpooling
- **Land Use**
 - Housing affordability
 - Jobs and housing mismatch
 - Sprawl

COR-3

COR-3: Goals

Process: elicit stakeholder perspective and partner approval on the comprehensive set of transportation, community and environmental goals. Focus will be regional outcomes of reducing congestion, improving safety and enhancing multi-modal options in the corridor supported by access to comprehensive data. Outcome: Develop a list set of goals guiding the selection of a set of solutions addressing opportunities and deficiencies.

Deliverables: Draft goals (review at next meeting)

Outcomes:

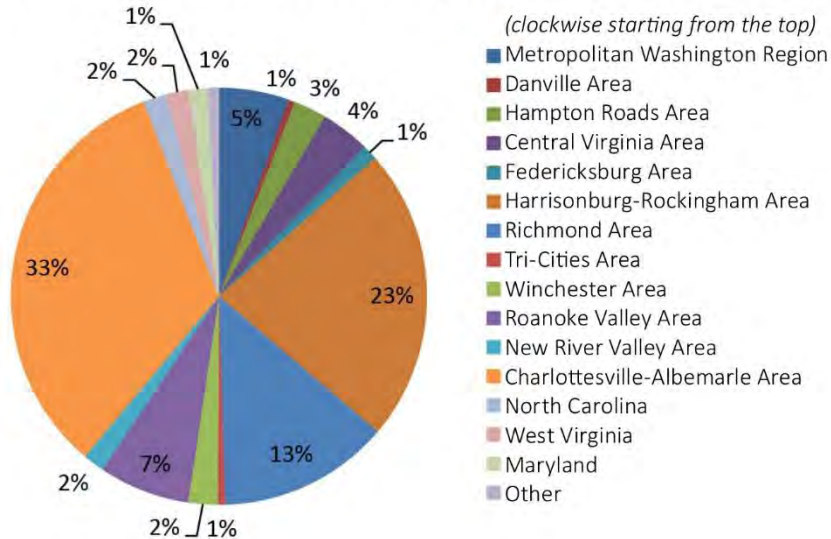
- Identify congestion and safety hotspots (Afton, Exit 118 etc.)
- Recommend areas for future studies (define scope and need of these studies)
- Identify areas of concern for inclusion in LRTPs and Statewide Plans etc.

Next steps

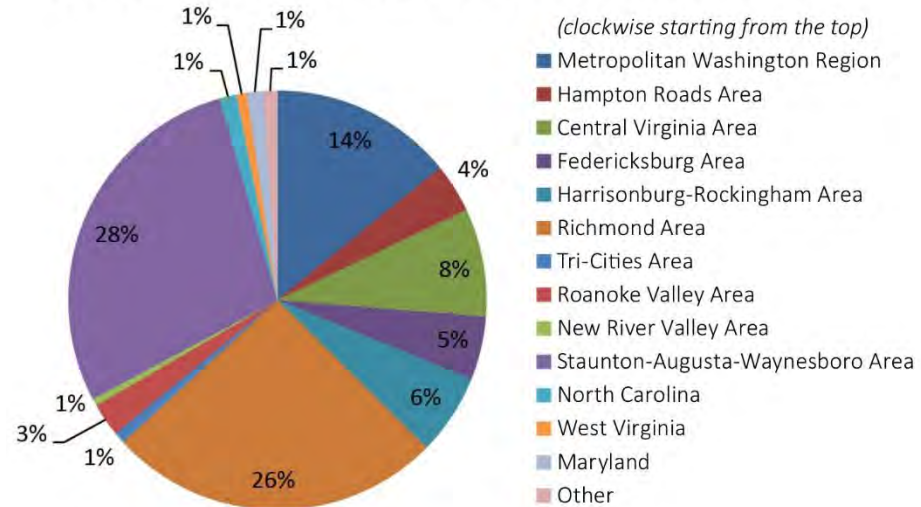
- MPO's will be developing an MOU on cooperation in the corridor
- Continue data gathering and review
 - ▣ Econ Dev, Accessibility, Congestion, Environmental factors
- Work through COR 3, 4 & 5
- Next Working group Meeting End of March
- Joint MPO meeting May (Draft MOU)

Trip Generation (Demand)

Travel from Staunton-Augusta-Waynesboro Area to...

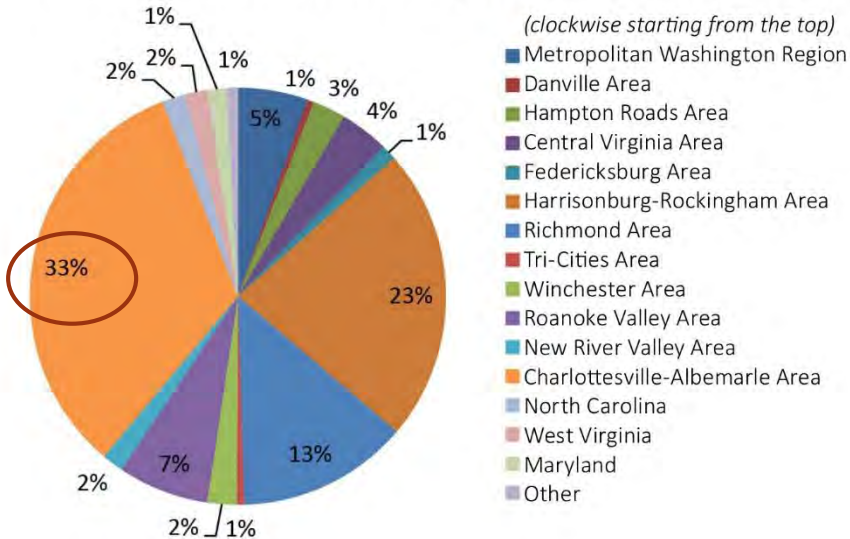


Travel from Charlottesville-Albemarle to...

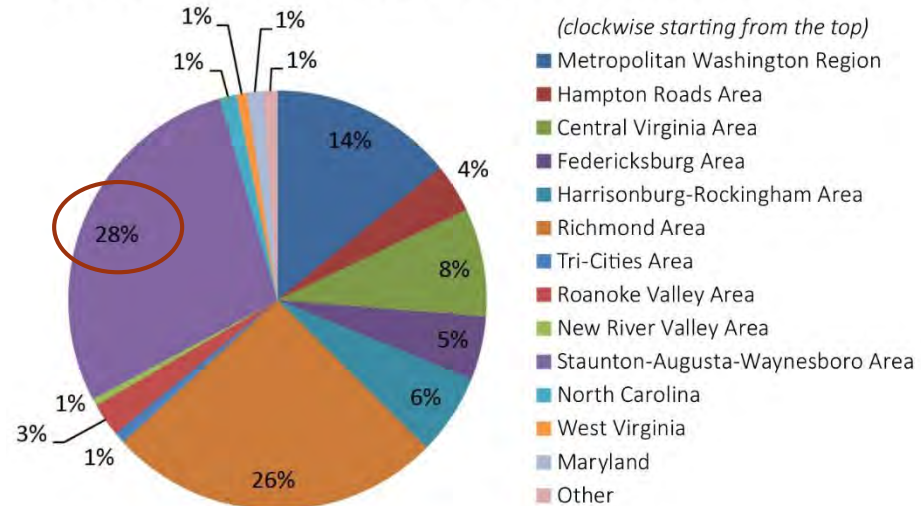


Trip Generation (Demand)

Travel from Staunton-Augusta-Waynesboro Area to...

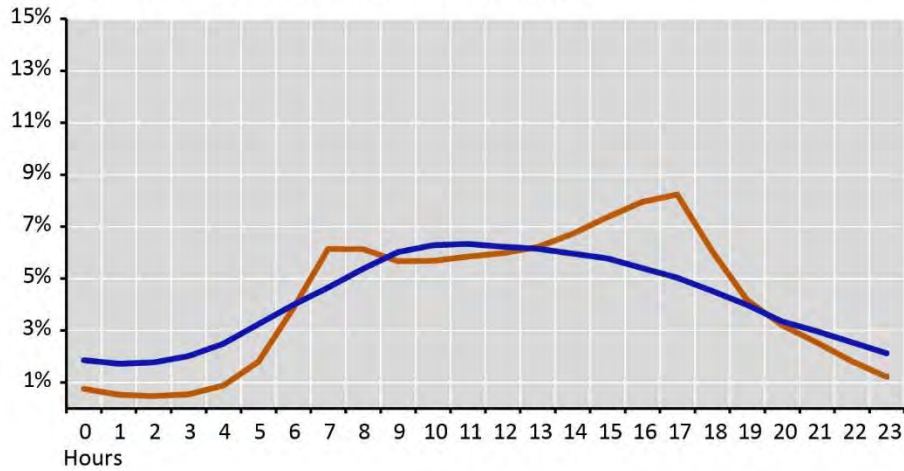


Travel from Charlottesville-Albemarle to...

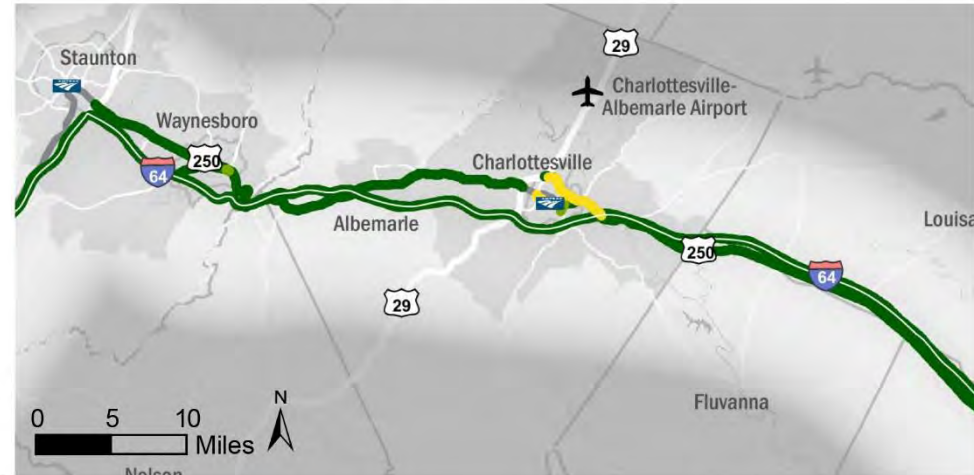


Vehicle Traffic

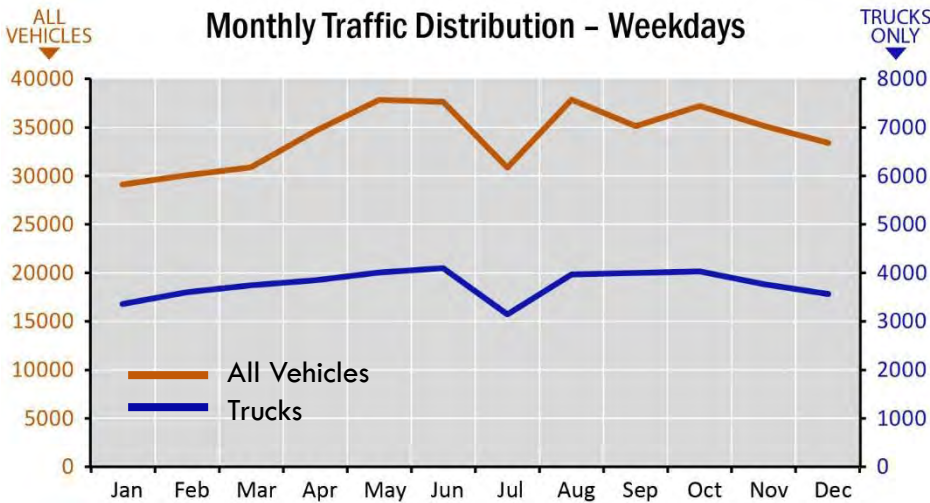
Hourly Traffic Distribution - Weekdays



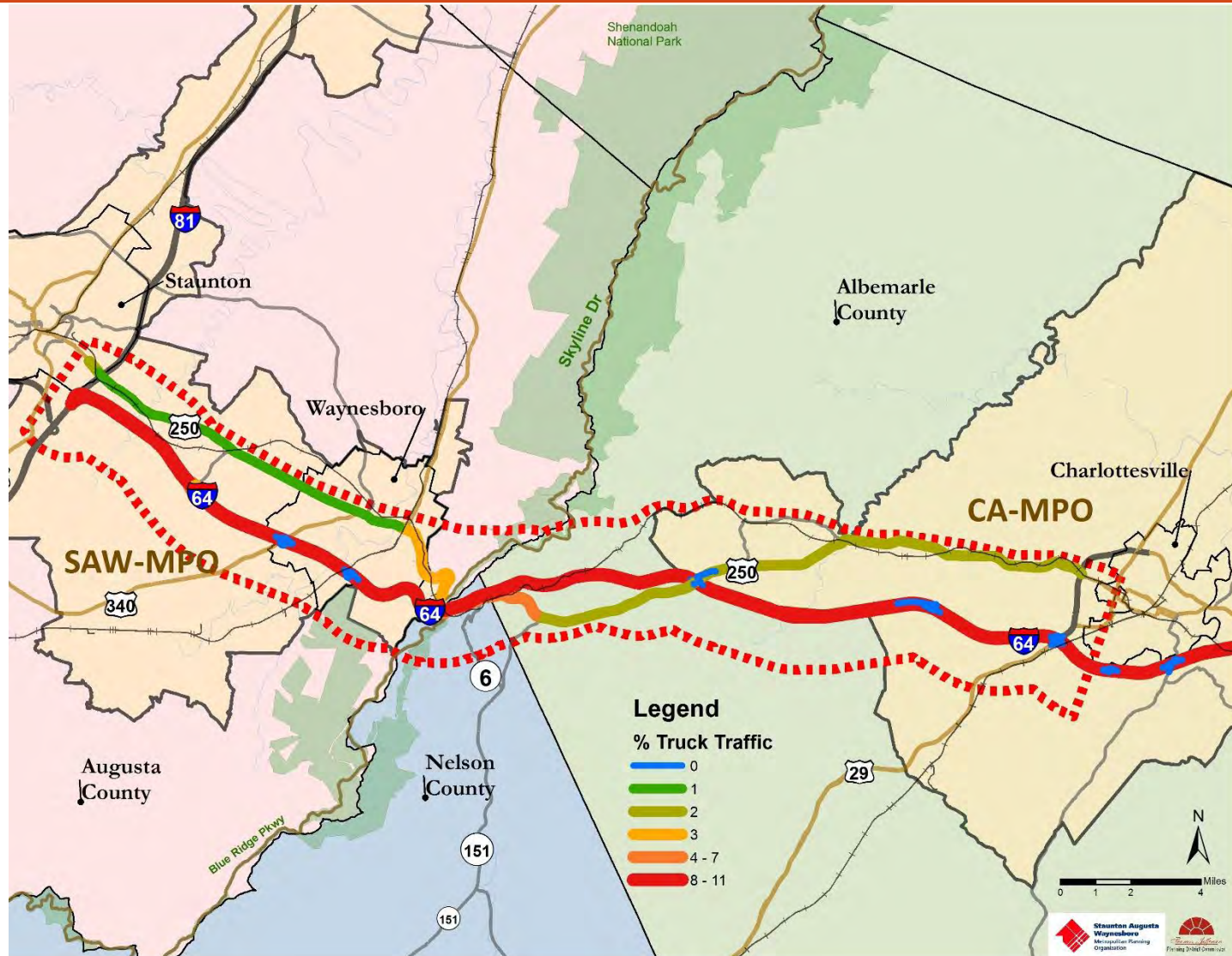
Daily Person Hours of Delay per Mile



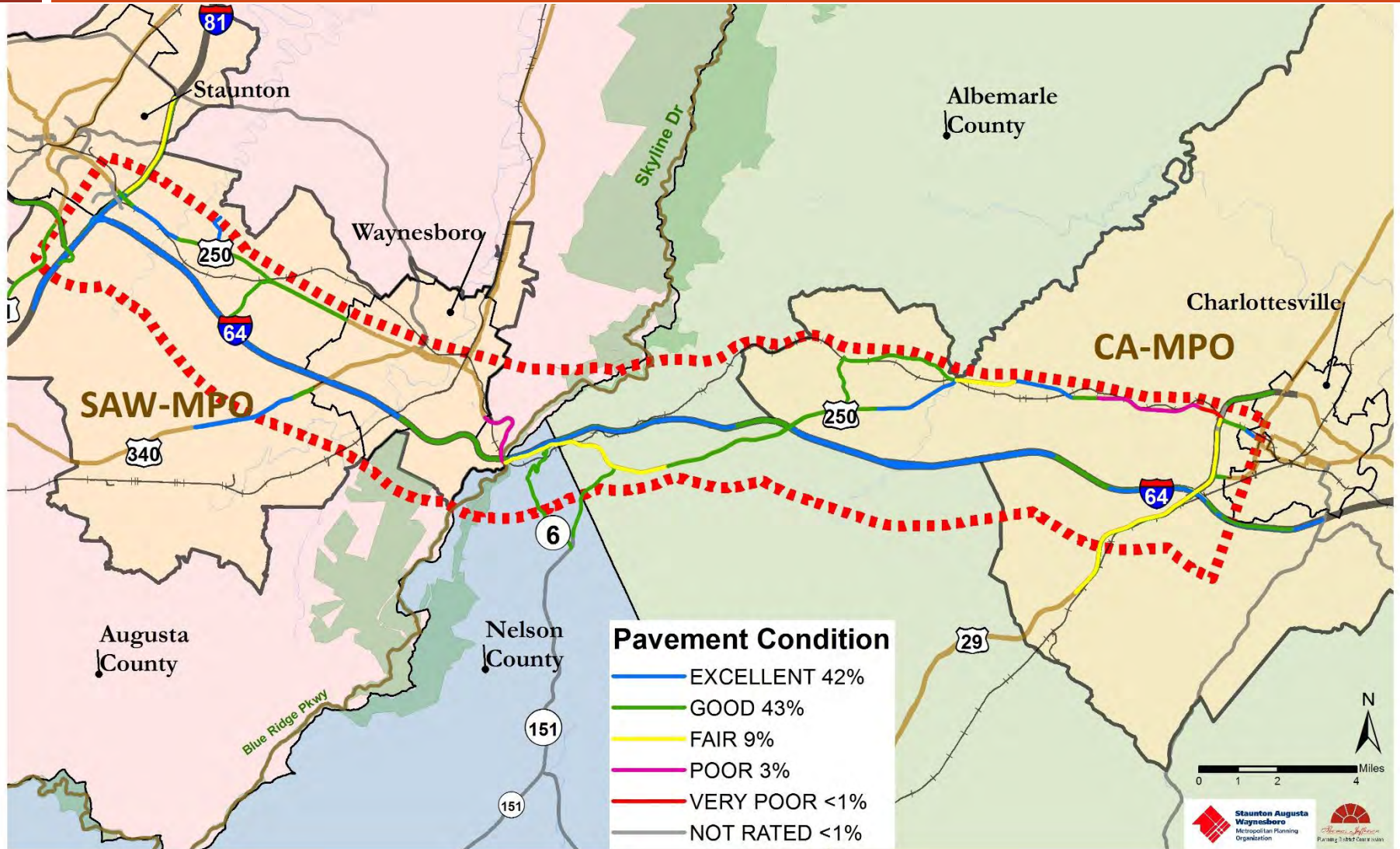
Monthly Traffic Distribution - Weekdays



Truck Traffic



Pavement Condition

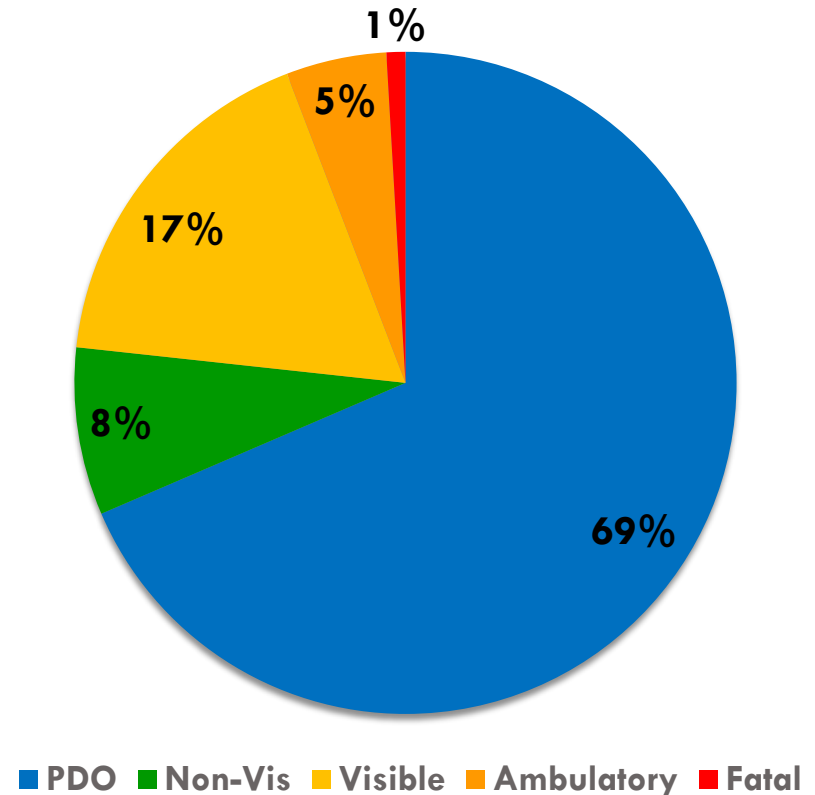


Analyzing Crashes: 2011-2016

- ❑ **3,140 total crashes**
- ❑ **Rear end collisions are the most prevalent**
- ❑ **30 fatalities**
- ❑ **Average of 1.5 crashes per day**
- ❑ **25% occur during peak afternoon commute times**
- ❑ **Fridays have slightly higher number**

Crash Severity

Severity	Number	Percentage of Total
Property Damage Only	2152	69%
Non-Visible Injury	257	8%
Visible Injury	548	17%
Ambulatory Injury	154	5%
Fatal Injury	29	1%



Crash Type

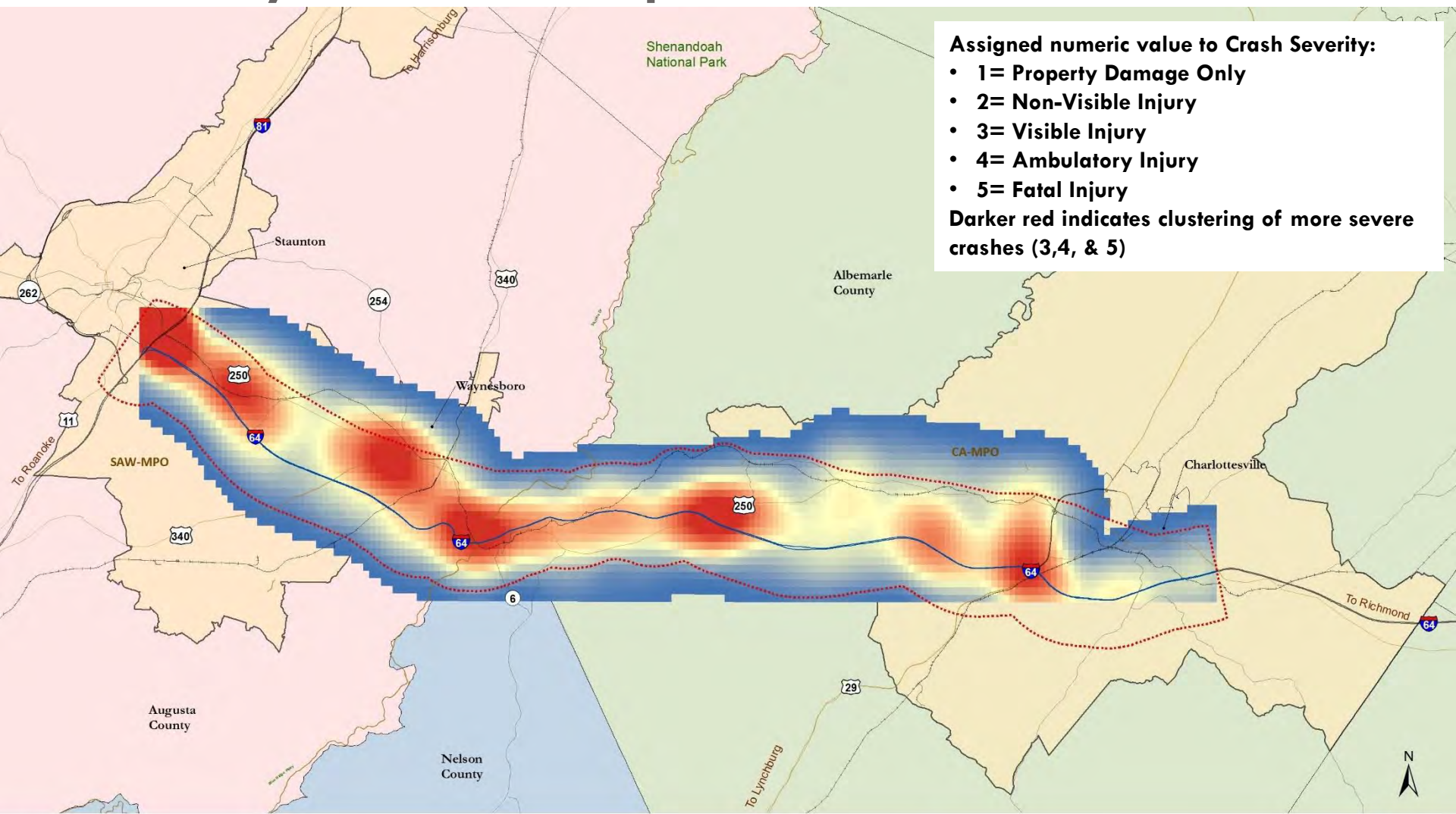
Collision Type	Number	Fatality	Serious Injury	Serious or Fatal % of Total
Rear End Collision	1023	3	31	3%
Fixed Object Off Road	687	6	44	7%
Angle	535	8	27	7%
Deer or Other Animal	466	0	2	.5%
Sideswipe (Either Direction)	222	2	6	4%
Non-Collision	72	2	17	26%
Head On	54	3	10	24%
Other	36	1	3	11%
Fixed Object In Road	19	1	0	5%
Pedestrian	18	3	6	50%
Backed Into	8	0	0	N/A
TOTAL	3140	29	146	

Severity Heat Map: ^{D-48} 2011-2016

Assigned numeric value to Crash Severity:

- 1= Property Damage Only
- 2= Non-Visible Injury
- 3= Visible Injury
- 4= Ambulatory Injury
- 5= Fatal Injury

Darker red indicates clustering of more severe crashes (3,4, & 5)



Legend

- I64 Corridor
- Rail
- ⬢ Focus Area

Value

High: 241021
Low: 1

MPO Areas
 Culpeper VDOT District
 Lynchburg VDOT District
 Staunton District VDOT District

Crash Severity Heat Map



0 1.25 2.5 5 Miles

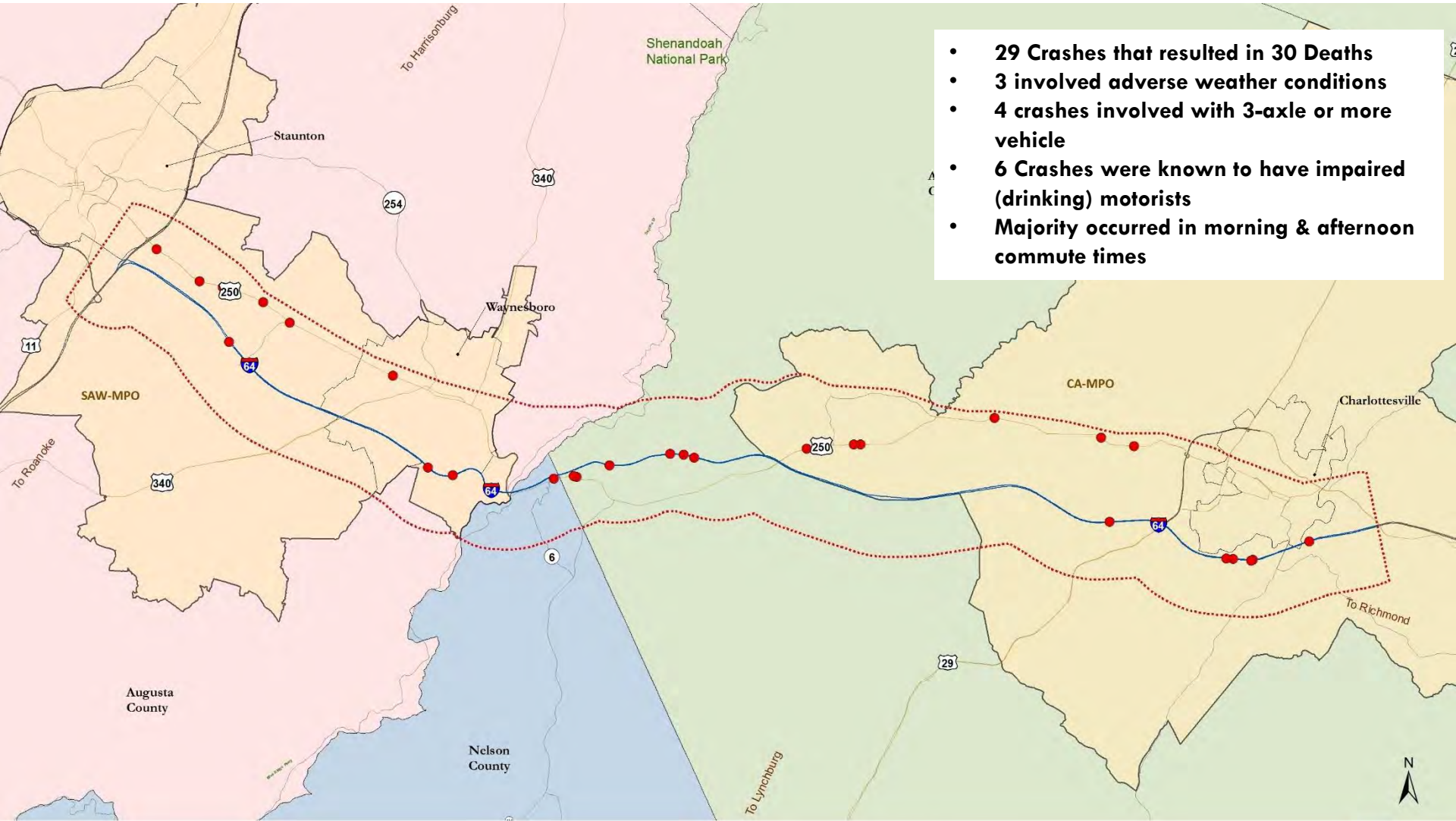
Thomas Jefferson
Planning District Commission

Disclaimer: Data used in creating this map was obtained from sources believed to be reliable, but currently unpublished in the field. It may require additional verification, completeness, validity, availability, timeliness, and accuracy of the data.

Fatal Crashes: 2011-2016

D-49

- **29 Crashes that resulted in 30 Deaths**
- **3 involved adverse weather conditions**
- **4 crashes involved with 3-axle or more vehicle**
- **6 Crashes were known to have impaired (drinking) motorists**
- **Majority occurred in morning & afternoon commute times**



Fatal Crashes: 2011-2016



0 1 2 4 Miles

Augusta & Jefferson
Planning District Commission

(Disclaimer: Data used in creating this map was obtained from sources believed to be reliable, but is not guaranteed, warranted, or certified. It is made available for informational purposes only and is not intended for use in any legal proceeding.)

- Legend**
- Fatal Crashes
 - ▭ Focus Area
 - I-64 Corridor
 - ▭ MPO Areas
 - ▭ Culpeper VDOT District
 - ▭ Lynchburg VDOT District
 - ▭ Staunton District VDOT District

D-50

QUESTIONS

Thomas Jefferson Planning District Commission

401 East Water Street
Charlottesville, VA 22902

Wood Hudson
Senior Planner

Resources: <http://campo.tjpd.org/>

VIRGINIA STATE POLICE

Motor Vehicle

Crash Investigation

Familiarization

Presented by

First Sergeant G. Scott VanLear

scott.vanlear@vsp.virginia.gov

540-885-2142

Crash or Accident?

- NO SUCH THING AS AN ACCIDENT
 - 2910 traffic laws*
 - 517 criminal laws*
 - Additionally there are Administrative Laws
(Construction, Alcohol, and Status Offenses)
- If you wreck you have violated one of these, thus you **crashed!**

* Source – Code of Virginia

Motor Vehicle Crash Investigation Objectives

- To determine the violation of law.
- Obtain the necessary evidence to **SUCCESSFULLY PROSECUTE** the violator.
- Obtain the necessary information to file the required reports.

Motor Vehicle Crashes

Extent of Investigation

- Non-Reportable vs. Reportable Crashes
 - Reportable = \$1,500 property damage and/or injury
- Criminal, Traffic, and/or Administrative
 - Fatal
 - Hit and Run
 - Assaults
 - Police Pursuits

^{D-55} Motor Vehicle Crashes

Extent of Investigation

- Severity/Circumstances of the Crash Determines Extent of the Investigation
 - Non-Reportable: Exchange of Information Only (unless an obvious serious violation of law such as DUI/DUID)
 - Reportable: Motor Vehicle Crash Investigation
 - Hit and Run: Criminal and Crash Investigation
 - Fatality or Possible Fatality: Extremely Detailed Criminal and Crash Investigation
 - Police/EMS: the above + Administrative Investigation

Criminal Investigation

- A Hit and Run is a CRIME by law
 - Requires Criminal Investigation and a Motor Vehicle Crash Investigation

- May be a MISDEMEANOR or FELONY
 - Attended Property, Personal Injury, Property Damage
 - Misdemeanor investigation is less involved than a Felony

- Scene Examination and Interviews are detailed, therefore more time consuming, since the preservation and recovery of evidence is detailed and documented correlating to the seriousness of the offense.

Criminal Investigation

- A Fatality is a HOMICIDE by law
 - Requires Extensive Criminal Investigation and a Motor Vehicle Crash Investigation
- Investigation of a Fatal Motor Vehicle Crash is extremely detailed and time consuming since the preservation and recovery of evidence must include/document EVERYTHING.
 - Laser Transit
 - Interrogation
 - Notes/Photos/LICAN/Seizure of Evidence

Motor Vehicle Crash Investigation^{D-58} (On Site Duties)

- Secure the Scene (Officer Safety Issue)
- Care for the Injured
- Detailed Examination of the Scene
- Locate and Interview all Witnesses and Drivers
- Arrange Scene Cleanup

Motor Vehicle Crash Investigation^{D-59} (On Site Duties)

- Secure the Scene (Officer Safety Issue)
 - Exposure to Secondary Threats
 - Weapons
 - Fire/Explosion
 - Traffic (Move out of Roadway or to another location)
 - Mental State of Parties Involved
 - Angry vs. Calm
 - Wanted/DUI/DUID
 - Preservation of Scene
 - Loss of Evidence

Motor Vehicle Crash Investigation^{D-60} (On Site Duties)

- Secure the Scene (Officer Safety Issue)
- Care for the Injured
 - Fire/Rescue on Scene vs. call for Fire/Rescue
 - Triage
 - First Aid

Motor Vehicle Crash Investigation^{D-61} (On Site Duties)

- Secure the Scene (Officer Safety Issue)
- Care for the Injured
- Detailed Examination of the Scene
 - Locate/Secure Physical Evidence
 - Mark Physical Evidence
 - Preserve Physical Evidence (Notes, Measurements, Photos, Packaging)

Motor Vehicle Crash Investigation^{D-62} (On Site Duties)

- Secure the Scene (Officer Safety Issue)
- Care for the Injured
- Detailed Examination of the Scene
- Locate and Interview all Witnesses
(Document their Account)
 - Drivers
 - Passengers
 - By-Standers
 - First Responders

Motor Vehicle Crash Investigation^{D-63} (On Site Duties)

- Secure the Scene (Officer Safety Issue)
- Care for the Injured
- Detailed Examination of the Scene
- Locate and Interview all Witnesses and Drivers

- Arrange Scene Cleanup
 - Drive-away vs. Tow-away?
 - Wreckers (Regular, Rollback, Large Wrecker, or Special Equipment/Crane required?)
 - Debris cleanup? (Tow Service, FD, HAZMAT, VDOT)
 - Roadway Repair?

Investigatory Conflicts

- Fire and Rescue Priorities
 - Care for Injured/Fire Suppression versus Scene Preservation
- VDOT Priorities
 - Roadway Closure/Property Damage Repair versus Detailed Investigation
- Wrecker Services
 - Vehicle Recovery versus Scene Preservation
 - Time = Money
- THE PUBLIC
 - Rubberneckers/morbid curiosity
 - Inattentive/Self absorbed

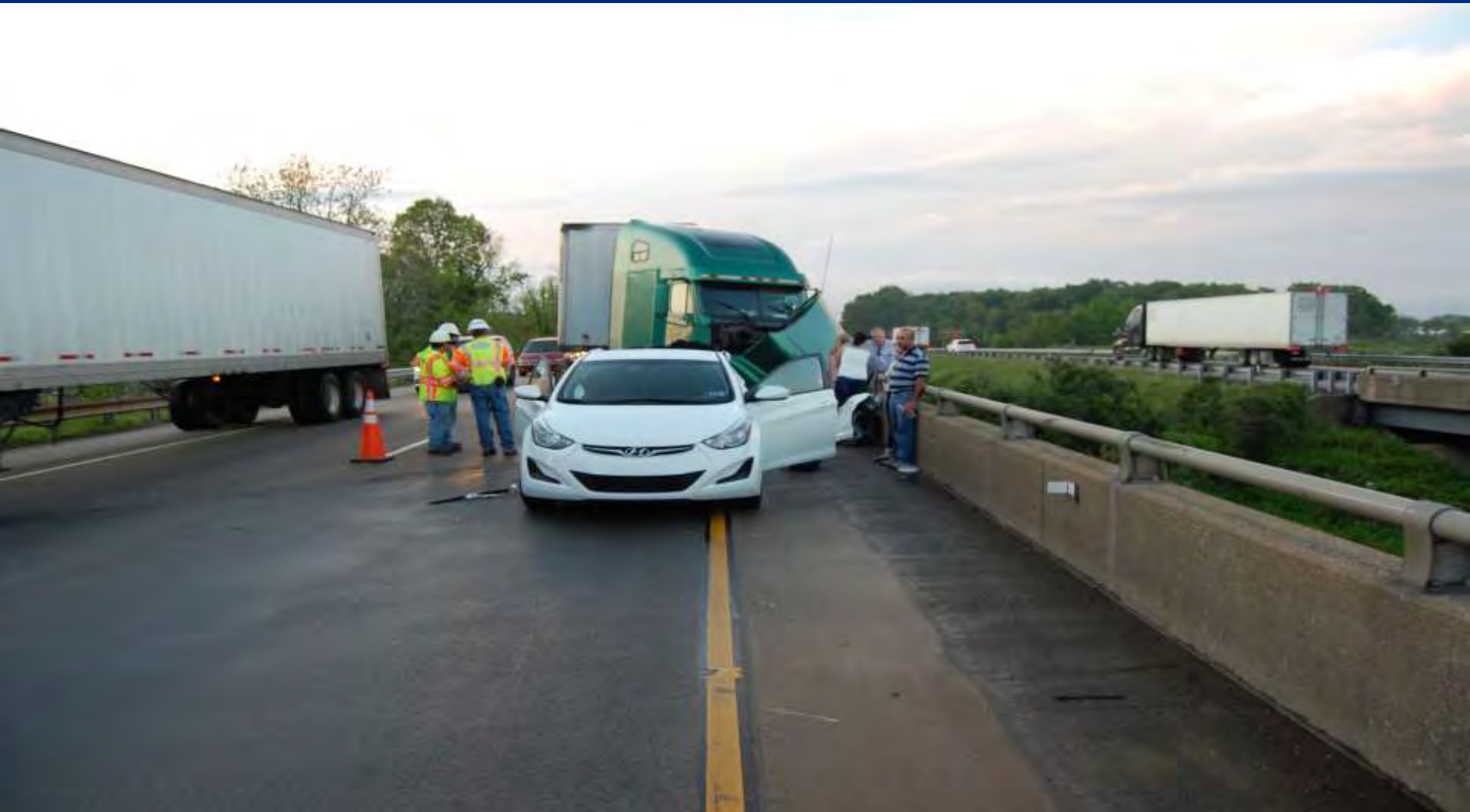
RESULTS

LOST REVENUE

- INTER-AGENCY TURMOIL
- PUBLIC OUTCRY

D-66

TRAFFIC BACKUPS



TRAFFIC BACKUPS



QUESTION

Why hasn't the State Police focused attention to I-64 Corridor?

ANSWER

Because it is not a significant source of calls for service, and thus is not a predominant user of our resources.

WAIT

LET ME

EXPLAIN

ITS ALL
ABOUT
PERSPECTIVE

D-72

LIPS THAT
TOUCH LIQUOR
SHALL NOT
TOUCH OURS



Some Facts about Troopers

- 37% Time devoted to Highway Safety
- 20% Time devoted to Crash Investigation
- 18% Time devoted to Criminal Interdiction
- 15% Time devoted to Report Writing
- 6% Time devoted to Public Liaison and Other Agency Cooperation (Safety Talks, Presentations, Assists)
- 4% Time devoted to Maintaining Equipment and Professional Standards (Cars & Training)

2015 Crash Facts ^{D-74}

(Albemarle, Augusta, Charlottesville, Staunton, Waynesboro)

<u>Road</u>	<u>Fatal</u>	<u>PI</u>	<u>PDO</u>	<u>Total</u>
I-64	2	82	274	358
Ramps	0	1	23	24
Rt. 250	9	199	362	570
I-81	0	68	179	247
ALL	30	1541	3184	4755

* Source - https://public.tableau.com/profile/publish/Crashtools8_2/Main#!/publish-confirm

7.5%

of the

Reportable Crashes

occurred on

I-64

77%

of those

Reportable Crashes

were

Property Damage Only

0.5%

of those

Reportable Crashes

were

Fatalities

^{D-78}
1.5%

of the

TROOPER'S TIME

is

DEVOTED

to

Reportable Crashes

on

I-64

QUESTIONS



SHRP2 I-64 Corridor Study Working Group Meeting # 2

January 31, 2017

1:00 PM to 3:00PM

Location: VRT Offices, 51 Ivy Ridge Lane, Fishersville, VA 22939

Agenda

1. Introductions (10 minutes)

- Project team staff will lead the working group through brief introductions.

2. Project Update and PlanWorks (20 minutes)

- Summary of the November Working Group Meeting
 - i. Review of PlanWorks COR-1(Scoping) and COR-2 (Mission Statement)
- Existing conditions and performance measures
 - i. Safety
 - ii. Congestion
 - iii. Roadway Conditions
 - iv. Freight
- December Public Open House feedback

3. Work Session #2: Public Safety (80 minutes)

Presentations

- *Sargent Scott VanLear – Area Commander: Augusta County -Virginia State Patrol*
- *Gary Critzer – Director, Waynesboro Emergency Management Services*

BREAK (10 minutes)

- *Roy Reid – VDOT Regional Traffic Operations Manager, Staunton & Culpepper Districts*
- *Rebecca Joyce – Senior Planner, Emergency Management Planning - CSPDC*

4. Action Items & Next Steps

5. Upcoming Meeting Topic

- Topic Economic Development/Accessibility PlanWorks COR-3 Evaluation Criteria

NWRO – Northwestern Regional Operations

VDOT's Role in Incident Response

- **Maintenance**
 - Assist in safely and quickly clearing incidents and restoring the roadway to normal traffic.

- **Operations**
 - Facilitate the flow of traffic information to the motoring public
 - 511 (Website, App, Phone)
 - Message Signs
 - Media

Area of Responsibility – 2 Districts, 20 Counties

➤ Staunton District

- 11 Counties
- Interstates – I-64, I-81, I-66

➤ Culpeper District

- 9 Counties
- Interstates – I-64, I-66

Operation Responsibilities

➤ Traffic Operations Center (TOC)

- TOC/SSP (Safety Service Patrol)
 - Incident Response
 - Motorist Assistance
 - Motorist Information
- ITS Devices
 - Maintenance
 - Deployment
- Signal Timing
 - Optimization of signal timing along parallel routes (e.g. US250) and interchanges
 - Coordination of signals on detour routes

- Incident Management
 - Traffic Incident Management Meetings
 - SHRP II Incident Management Training - Participated with VSP – Conducted 14 training classes in 2016
 - Long duration Incidents – Interstate Maintenance
 - VDOT Managed / Contractor Serviced

What we are doing on I-64 Corridor

- Establish Allowable Work Hours for planned roadway maintenance
- I-64 ATSM (Afton Mountain Safety Project)
 - 14 Cameras
 - 14 Message signs
 - 2 New weather stations
- Afton Mountain Communication Working Group
- Detour Plans
- Deer Crossing Messaging (Pilot)
- Deer Fencing near Exit 114(Ivy); VTRC Project



SHRP2 I-64 Corridor Study Working Group Meeting #3

March 30, 2017

1:00 PM to 3:00PM

Location: TJPDC 407 East Water Street, Charlottesville

Agenda

1. Introductions (5 minutes)

- Project team staff will lead the working group through brief introductions.

2. Project Update and PlanWorks (15 minutes)

- Summary of the January Working Group Meeting
 - i. Review of PlanWorks COR-3
- MPO Memorandum of Agreement

3. Work Session: (90 minutes)

- *Inter-Regional Transit Study – KFH Group*
- *Rideshare – Sara Pennington, Rideshare Coordinator, TJPDC*

BREAK (5 minutes)

- *Operations Analyses Truck Climbing Lanes – VDOT*
- *Economic Development – Greg Hitchin, City of Waynesboro Director of Economic Development*

4. Action Items & Next Steps

5. Upcoming Meeting Topic

- Topic Natural Resources and environment, PlanWorks COR-4 Environmental

SHRP2 Interstate 64 Corridor Plan

Shenandoah Piedmont area Collaborative
Effort (SPaCE)

Working Group Meeting #3

March 30, 2017



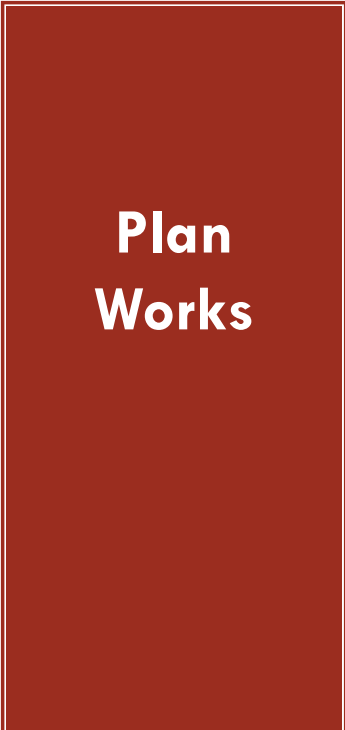
Project Scope

Scope

1. Open a dialog with interests in the I64 Corridor
2. Build an understanding of the issues through collaborative discussions and by engaging the experts
3. Use transportation performance measure to identify deficiencies in the corridor
4. Identify ways to improve collaboration and communication on issues of governance, maintenance and project identification
5. Document lessons learned and produce a final document that outlines deficiencies and concept level solutions


Project Study Area



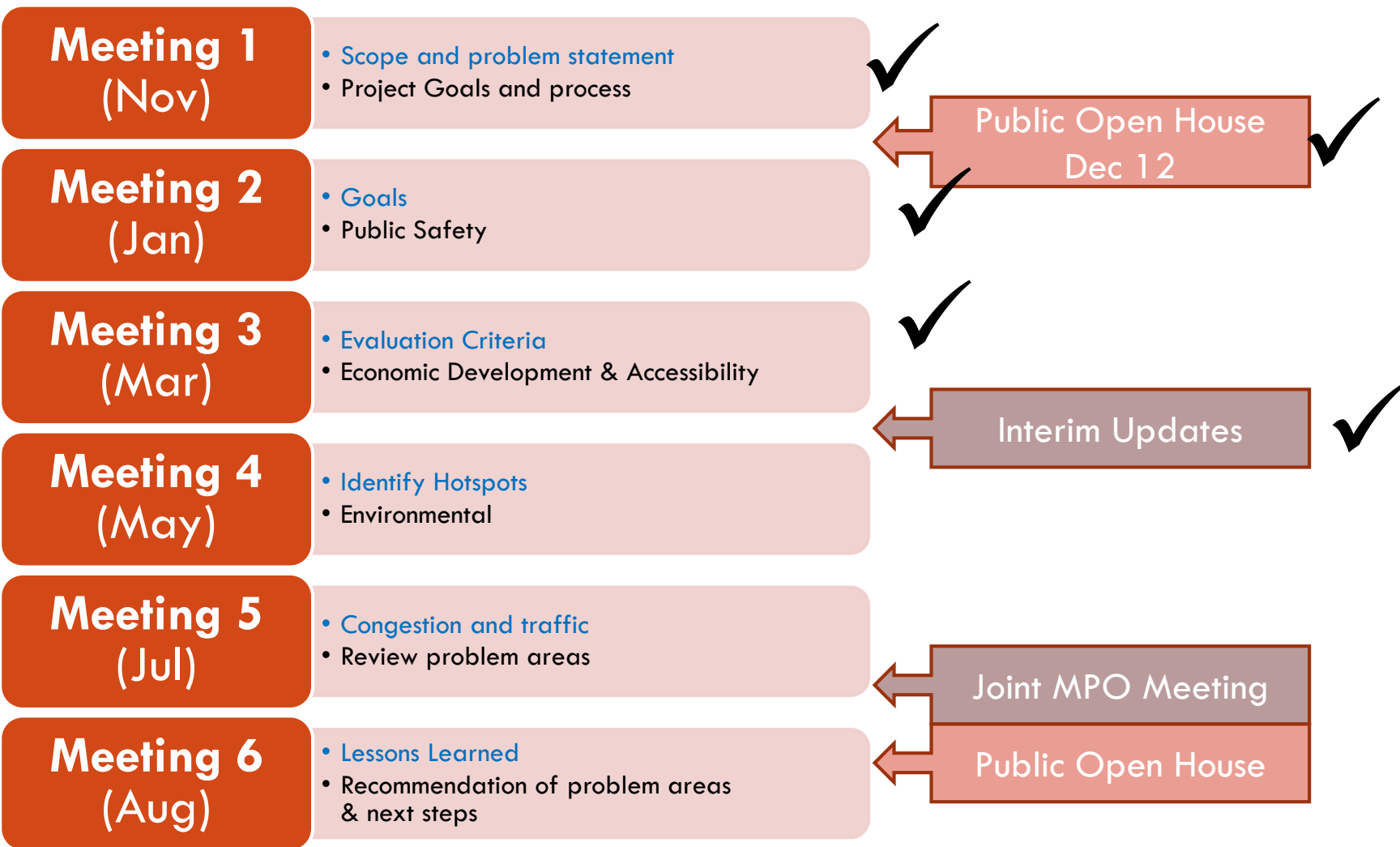


Corridor Planning Toolkit

- ▣ The Decision Guide streamlines the transportation process by systematically building in collaboration. It was developed using examples of successful practice and with input from all partners in transportation decision making.
- ▣ The Decision Guide was developed from 23 in-depth, detailed case studies (Including the CA-MPO 2040 LRTP TCAPP Process)

Corridor Planning								
 <p>COR-1 <u>Approve Scope of Corridor Planning Process</u> ✓</p>	<p>COR-2 <u>Approve Problem Statements and Opportunities</u> ✓</p>	<p>COR-3 <u>Approve Goals for the Corridor</u></p>	<p>COR-4 <u>Reach Consensus on Scope of Environmental Review and Analysis</u></p>	<p>COR-5 <u>Approve Evaluation Criteria, Methods and Measures</u></p>	<p>COR-6 <u>Approve Range of Solution Sets</u></p>	<p>COR-7 <u>Adopt Preferred Solution Set</u></p>	<p>COR-8 <u>Approve Evaluation Criteria, Methods and Measures for Prioritization of Projects</u></p>	<p>COR-9 <u>Adopt Priorities for Implementation</u></p>

Working Group Meetings



COR-1

COR-1: Approve Scope and Process

First steps: coordinating partners and establishing formal lines of communications between groups that communicate infrequently. Evaluation of decision points and creating collaborative decision-making across multiple disciplines and tiers of government will be included.

Deliverables: Draft Scope to guide planning process; Aggregate data repository.

Outcomes:

- The geographical scope
- Technical Scope
- Web Data Repository

<http://campo.tjpd.org/i64-corridor/>

COR-1

Scope of
Corridor
Planning Process

COR-1 Outcomes

Geographic Scope



COR-1 Outcomes

- The Technical scope is based on meeting the regional need of improving the safe efficient movement of **goods** and **people** through the study corridor. Due to the corridor being super-regional in nature the technical aspects of the corridor study focus heavily on improving inter-governmental and inter-agency communication, coordination, and facility management.
- Data Repository A project specific webpage has been set up within the Charlottesville Albemarle MPO domain. <http://campo.tjpd.org/i64-corridor/>. The site includes information about the project, an interactive map, and a growing inventory of corridor related studies GIS and reports.

COR-2

COR-2: Approve Problem Statements/Opportunities

SPaCE will engage facilitated collaborative meetings, focused stakeholder groups, public input sessions and multi-media engagement to identify a common understanding of the issues and seek partner and stakeholder identification of problems and opportunities.

Deliverables: Work towards agreement among stakeholders on the deficiencies and potential opportunities. Staff collaborating with the Working Group have identified the following deficiencies:

COR-2

Problem
statement and
opportunities

COR-2 Deficiencies

- Safety
 - Crashes
 - Speed
- Peak hour congestion
 - Congestion at key exits
 - Traffic at Afton caused by slow moving heavy vehicles
 - Commuter demand
 - Through traffic demand
- State of good repair
 - Roadway pavement conditions
- Accessibility
 - Transit
 - Carpooling
- Land Use
 - Housing affordability
 - Jobs and housing mismatch

COR-3

COR-3: Goals

Process: elicit stakeholder perspective and partner approval on the comprehensive set of transportation, community and environmental goals. Focus will be regional outcomes of reducing congestion, improving safety and enhancing multi-modal options in the corridor supported by access to comprehensive data. Outcome: Develop a list set of goals guiding the selection of a set of solutions addressing opportunities and deficiencies.

Deliverables: Draft goals

COR-3

Approve goals
for the corridor
project

COR-3 Corridor Goals

1. **Improve** the overall function of the corridor by increasing the efficiency and safety of which goods and people move through the corridor.
2. **Facilitate** communication among MPOs, Local Governments, VDOT and DRPT on planning issues in the corridor.
3. **Minimize** the impact that any projects have on natural resources and the environment.

Status Update

- Project Webpage – **Completed**
- Draft MOU – **Draft Completed**
- Database of Plans and Studies – **Collecting Information**
- Draft Corridor Study Report – **Developing outline**
- Joint MPO Meetings – **Hosted 1 of 2**

MPO MOU

MPO MOU

- Between the CA-MPO and the SAW-MPO
- Focuses on how we can better integrate our planning for the corridor
- Provide support when seeking funding for corridor related projects
- Provides a framework for future cooperation and Joint Meetings

Next Steps

Next Steps

- ❑ Next working group meeting End of May
- ❑ Draft MOU for review by Policy Boards
- ❑ Work through COR 4 & 5 @ staff level
- ❑ Finalize analyses of hotspots & deficiencies
- ❑ Develop draft plan and report

D-101

QUESTIONS

Thomas Jefferson Planning District Commission

401 East Water Street
Charlottesville, VA 22902

Wood Hudson
Senior Planner

Resources: <http://campo.tjpd.org/>

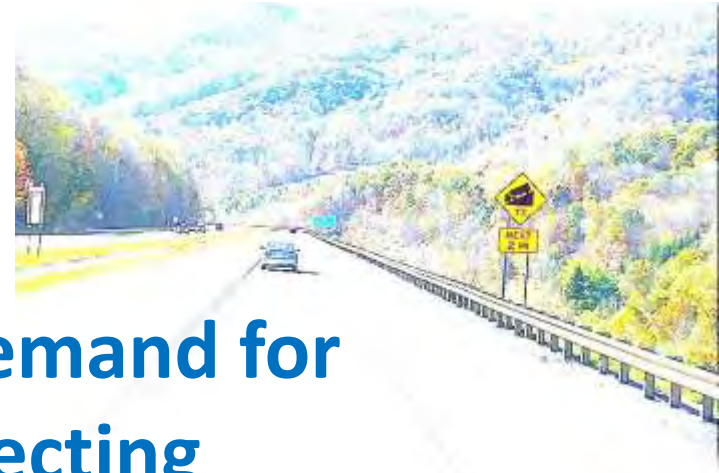
I-81/I-64 Inter-Regional Public Transportation Study

Presentation to
SHRP2 I-64 Corridor Working Group
March 30, 2017



Study Scope

- **Assess potential need and demand for regional transit service connecting Harrisonburg, Staunton, Waynesboro and Charlottesville**
- **Develop service alternatives appropriate to the need and demand**
- **Estimate ridership, revenue, and costs**
- **Develop organizational options for implementation of the regional service**



Challenges, Needs and Opportunities



- **Bi-directional demand, with Charlottesville serving as the primary destination**
- **Afton Mountain is a significant travel barrier**
- **Significant Charlottesville area medical destinations, specifically the UVA Medical Center and Sentara Martha Jefferson Hospital**
- **Parking concerns on both the JMU campus and the UVA campus**



Challenges, Needs and Opportunities - continued



- JMU students need access to an airport – either Dulles or Charlottesville – Dulles will soon have limited service via a new route, to be implemented in FY18
- First mile/last mile concerns
- Connections to Greyhound, Amtrak, and local bus services are needed
- Park and ride lots are needed in Harrisonburg and Staunton, and a need for improvements to the lot in Waynesboro
- Service needs to be accessible for people with disabilities, with relatively low fares





Previous Plans and Studies

- **Albemarle County Comprehensive Plan (rail)**
- **CSPDC TDP**
- **SAW MPO 2040 LRTP**
- **HDPT TDP- intercity bus service along I-81**
- **JMU Transportation Department Surveys**
- **JAUNT TDP**
- **Virginia Intercity Bus Plan**

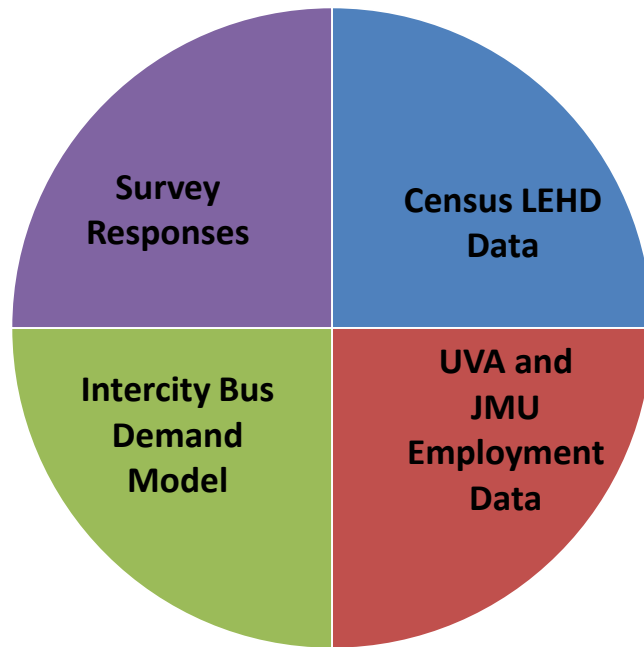


Survey Highlights

- Commuter survey conducted in April, 2016
- On-line, 609 responses
- 96% reported a need for service between the Shenandoah Valley and Charlottesville
 - 40% would use
 - 56% might use
- 81% of respondents currently drive alone
- Travel purposes
 - Work – 63%
 - Errands – 11%
 - Medical -6%
 - School – 5%
- Primary destinations
 - UVA Medical- 19%
 - UVA – 14%
 - Downtown Charlottesville – 5%
 - JMU- 15%
- Low fare desired
- Amenities: Guaranteed ride home, Wi-Fi, comfortable seats, lighting



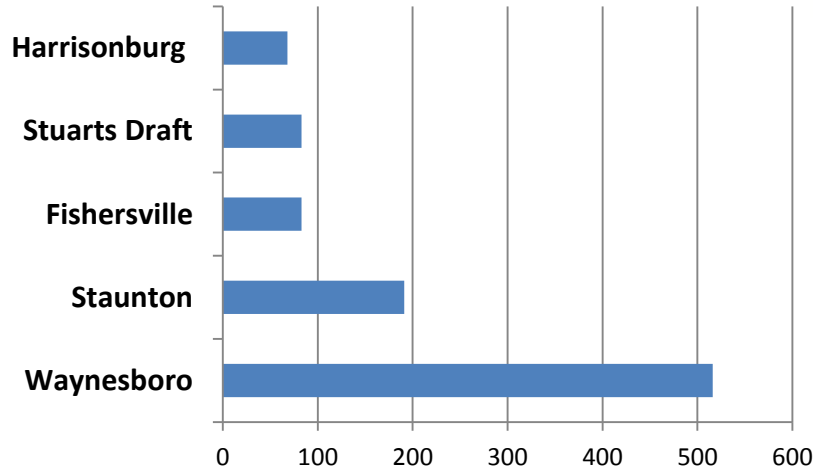
Demand Methodology



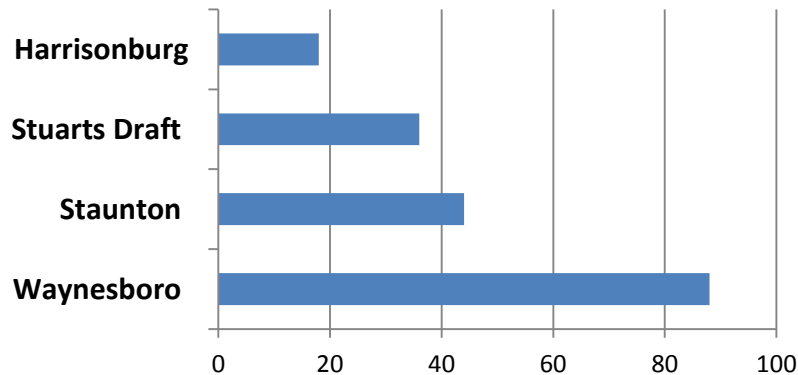
Commuting Patterns



1,257 Commuters to Downtown and UVA Medical from the Shenandoah Valley

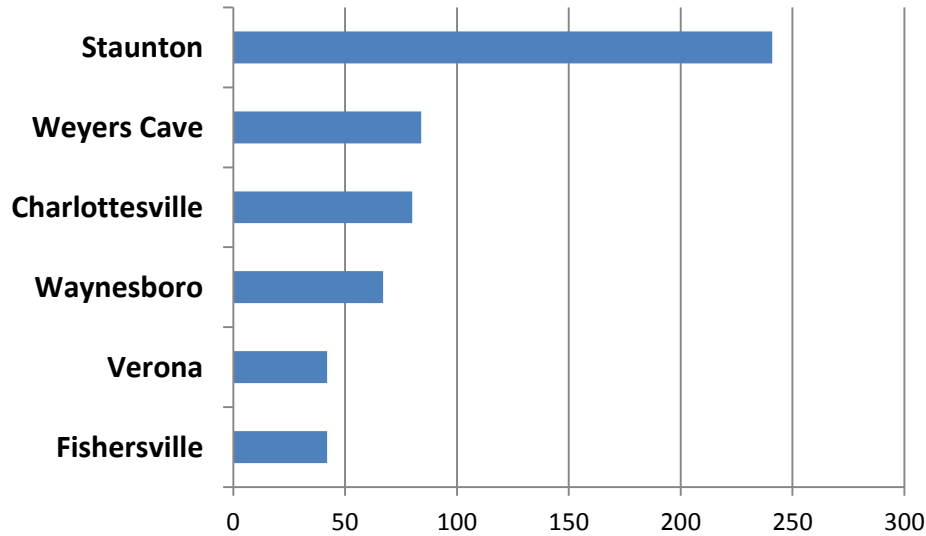


237 Commuters to Martha Jefferson Hospital area from the Shenandoah Valley



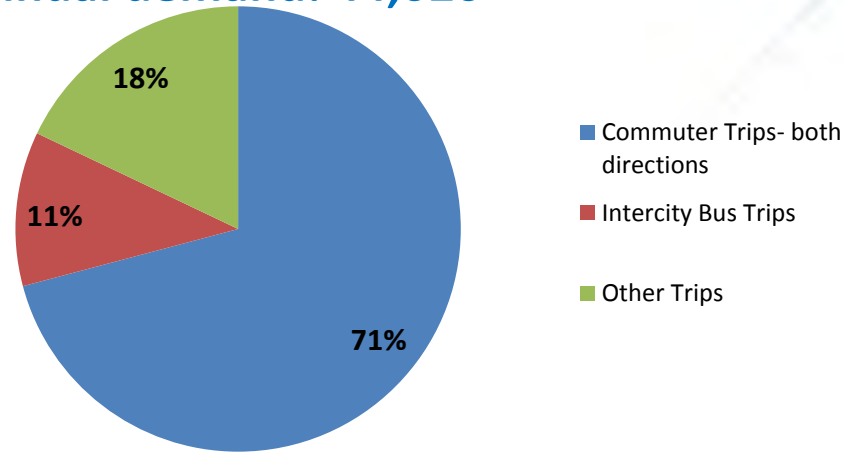
Commuting Patterns

556 commuters through the corridor to Harrisonburg



Projected Demand

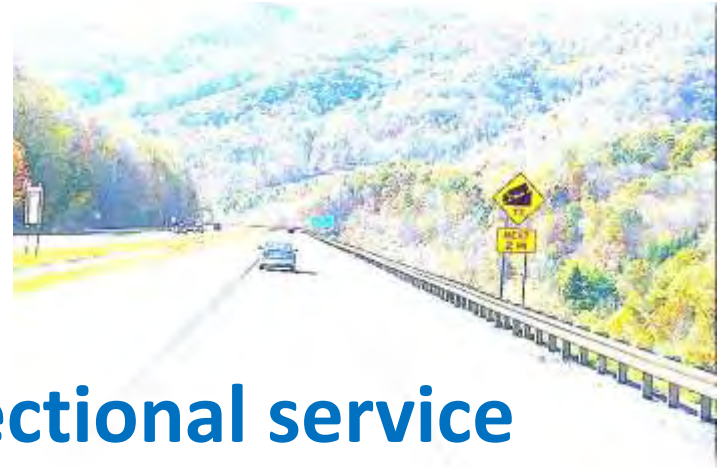
- **Total projected annual demand: 44,620**



- **Based on 255 annual service days, average daily ridership would be 175 passenger trips, including both directions**
- **Would require (at least) three round-trips (six one-way vehicle trips if demand is bi-directional over the corridor**
- **Peak demand would require more capacity**
- **Demand would likely start smaller and build to this level**



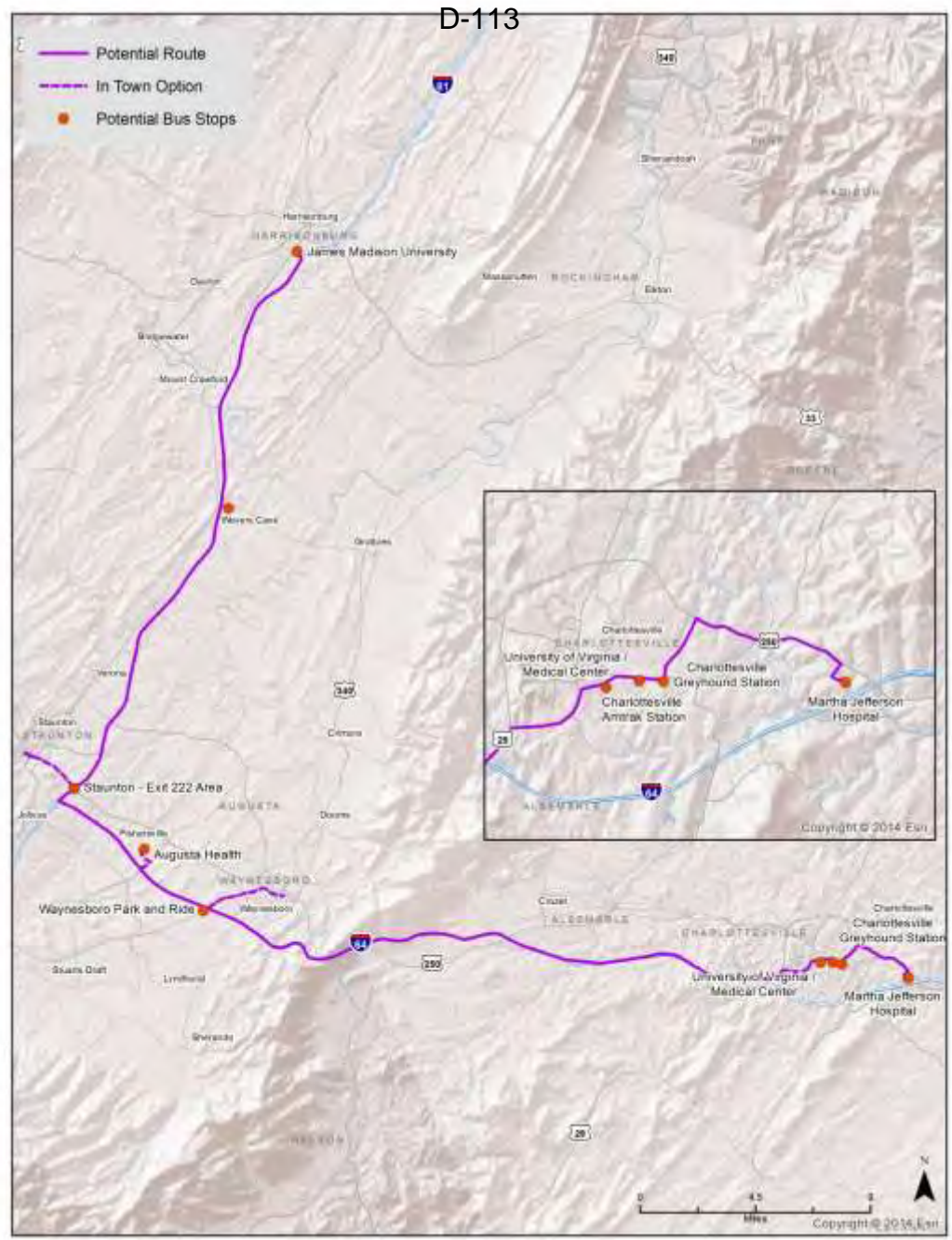
Service Alternatives Considered



- **Option 1: Full Corridor, Bi-Directional service**
- **Option 2: Full Corridor, Bi-Directional service, No Martha Jefferson**
- **Option 3: Full Corridor, Peak direction only**
- **Option 4: Originate service in Weyers Cave**



Proposed Route



Preferred Alternative: Full Corridor, Bi-Directional Service

- 23 revenue hours per weekday
- 5,865 annual revenue hours
- 193,300 annual revenue miles
- Projected demand: 44,620 annual passenger trips
- Three vehicles required (plus 1 spare/backup)



Purposes of the Service

As designed, the inter-regional service will provide:

- A public transportation connection between two major state universities – James Madison University and the University of Virginia.
- Commuter bus service for residents of the Shenandoah Valley who work in Charlottesville, including those who work hospital shifts at UVA Hospital (7:00 a.m. to 3:00 p.m. and 7:00 a.m. to 7:00 p.m.) and those who work a more traditional office schedule.
- Commuter bus service between Staunton and JMU.
- A connection between Augusta Health, UVA Hospital, Martha Jefferson Hospital.
- A public transportation option for area residents who do not drive to access medical appointments in Charlottesville.
- A meaningful connection to both Greyhound and Amtrak. These connections would allow Shenandoah Valley residents to connect to Richmond and the Northeast corridor. A meaningful connection to Greyhound is important, as it could allow for 100% federal funding for the trips that provide this connection.

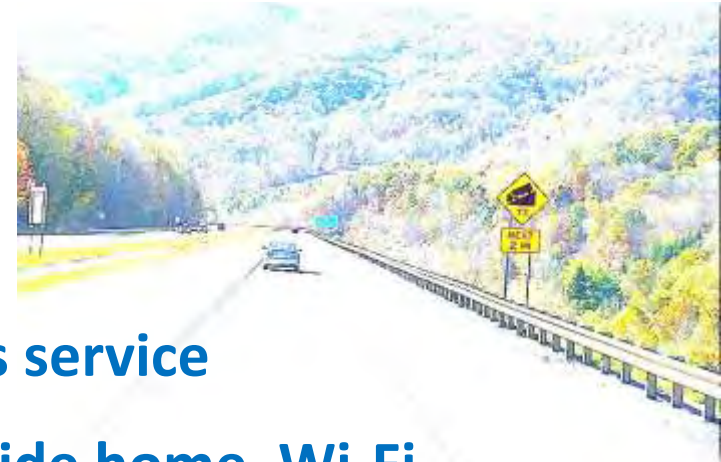


Sample Schedule – ^{D-116} For Planning Purposes

Eastbound Stops	a.m. service			p.m. service				
	Bus 1	Bus 2	Bus 3	Bus 1	Bus 2	Bus 3	Bus 1	
James Madison University- Godwin			6:30	8:30	9:15	10:45	5:15	
Harrisonburg - Park and Ride, TBD			6:35	8:35	9:20	10:50	5:20	
Weyers Cave - Park and Ride, TBD			6:48	8:48	9:34	11:03	n.s.	
Staunton - transit hub		n.s.	n.s.	9:10	n.s.	11:25	5:45	
Staunton - Park and Ride, TBD		5:50	7:06	9:18	9:52	11:33	5:53	
Augusta Health - Fishersville		n.s.	n.s.	9:28	n.s.	n.s.	n.s.	
Waynesboro Park and Ride		6:05	7:20	9:36	10:06	11:47	6:07	
Waynesboro transit hub		n.s.	n.s.	9:44	n.s.	11:55	6:15	
University of Virginia - University Drive, Charlottesville		6:45	8:00	10:24	10:46	12:35	6:55	
University of Virginia Medical Center, Charlottesville		6:47	8:02	10:26	10:48	12:37	6:57	
Downtown Charlottesville - Amtrak		6:49	8:04	10:28	10:50	12:39	6:59	
Downtown Charlottesville - Greyhound		6:51	8:06	10:30	10:52	12:41	7:01	
Martha Jefferson		n.s.	8:20	10:44	n.s.	n.s.	n.s.	
Charlottesville		Short Break	Short Break	Service Break	Service Break	Service Break	Short Break	
		a.m. service			p.m. service			
Westbound Stops	Bus 1	Bus 2	Bus 3	Bus 3	Bus 1	Bus 2	Bus 1	
Martha Jefferson	n.s.	n.s.	n.s.	n.s.	3:00	5:30	n.s.	
Downtown Charlottesville - Greyhound	n.s.	n.s.	n.s.	2:15	3:15	5:45	eb	
Downtown Charlottesville - Amtrak	n.s.	n.s.	n.s.	2:17	3:17	5:47	eb	
University of Virginia Medical Center, Charlottesville	n.s.		n.s.	2:19	3:19	5:49	7:15	
University of Virginia - University Drive, Charlottesville	n.s.	7:00	8:45	2:21	3:21	5:51	7:17	
Waynesboro transit hub	n.s.	7:40	9:25	3:01	n.s.	6:31	n.s.	
Waynesboro Park and Ride	n.s.	n.s.	n.s.	n.s.	4:01	6:41	7:57	
Augusta Health - Fishersville	n.s.	7:55	n.s.	n.s.	n.s.	n.s.	n.s.	
Staunton Park and Ride	7:30	n.s.	n.s.	3:15	4:13	6:53	8:09	
Staunton Transit Center	7:40	8:15	9:50	n.s.	n.s.	n.s.	n.s.	
Weyers Cave Park and Ride	n.s.	n.s.	n.s.	3:33	4:31	7:11	8:27	
Harrisonburg Park and Ride	n.s.	n.s.	n.s.	3:47	4:55	7:25	8:41	
JMU- Godwin	8:15	9:00	10:35	3:52	5:00	7:30	8:45	
Harrisonburg	Short Break	Short Break	Short Break	Service End	Short Break	Service End	Service End	

Bold Yellow shading denotes connection with Greyhound and **Bold Green** denotes connection with Amtrak service within 2 hours.

Service Considerations



- **Need to limit stops to provide express service**
- **Riders desire amenities- guaranteed ride home, Wi-Fi, comfortable seats, lighting, power**
- **Need for stop(s) in non-urbanized area to permit access to Section 5311 funding (Weyers Cave)**
- **Need for schedules connecting to Greyhound within two-hour window for Greyhound in-kind match**
- **Schedules will need to consider needs of three markets – commuters, intercity travelers, and day-trippers**
- **Potential to break at Capital Area Transit**
- **Need for new park and ride lots**



Fares

- **Comparable services in Virginia**
 - Smartway fare Blacksburg-Roanoke is \$4.00 each way,
 - JAUNT service Nelson-Wintergreen is \$4.00 each way
- Proposal is \$5.00 Harrisonburg/Weyers Cave-Charlottesville, \$4.00 Staunton/Waynesboro-Charlottesville. Lower fare for trips within the Shenandoah Valley
- Multi-trip discounts for commuters



Operating Costs—Preferred Option:

- **Operating Expenses – Labor, fuel, insurance, etc.**
- **Leased or contractor capital in recognition of guidance from DRPT with regard to the near-term availability of capital funds**
- **Estimate of \$444,590 annually, using a smaller vehicle**

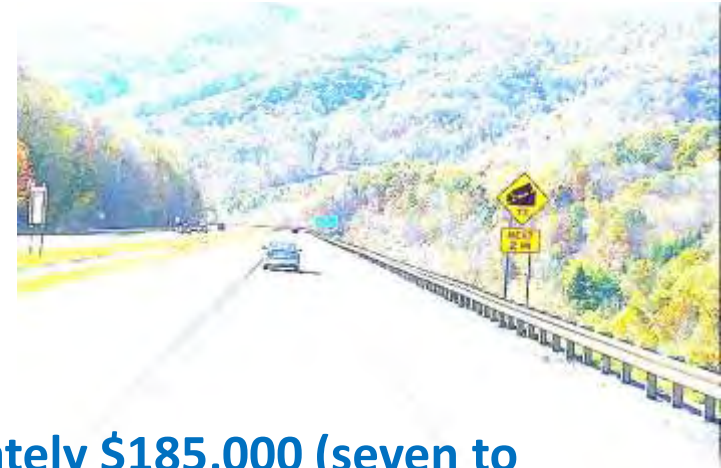


Vehicles

—Preferred Option

Leased or contractor-owned

- Smaller 25-30 seat truck-bus: approximately \$185,000 (seven to ten-year vehicle)— startup
- Over-the-road coach (55 seat): \$600,000 (12 year vehicle)—future years
- Each option would include passenger amenities



Potential Funding



Operating Costs, Including the Cost of Vehicles	Estimated Annual Operating Parameters			Estimated Funding Splits				Estimated Annual Ridership	Cost Per Trip
	Service Hours	Revenue Miles	Operating Costs	Farebox Revenue	Federal S.5311	State Assistance	Local Assistance		
Full Corridor, Bi-Directional Service	5,865	193,300	\$444,590	\$133,860	\$155,365	\$49,717	\$105,648	44,620	\$9.96

Notes:

Cost estimates assume smaller vehicles, leased or owned by the service provider.

Per unit cost is \$2.30 a mile, referenced from the low end of costs from the Virginia Intercity Bus Plan.

The low end was used to reflect the smaller, less expensive vehicles.

A fare of \$3.00 each way was used to estimate farebox revenue.

This is lower than the proposed fare and was used to account for multi-trip discounts that may potentially be offered.

In-kind match for S.5311 may be an option for trips that connect with Greyhound, if this project is part of the Intercity Bus Program.



Park and Ride Needs

Harrisonburg

- JMU Lots R11 and R10 adjacent to I-81 Exit 245
- Future use of state park and ride when intersection is reconfigured



Weyers Cave

- Augusta County Weyers Cave Road widening Smart Scale grant application includes construction of a 50-60 space lot – Exit 235
- Short-term options include lease of space or BRCC



Staunton

- Staunton Crossing Area – Smart Scale application submitted
- Short-term options include leasing space from retailers on Route 250

Waynesboro

- Improvements to current lot- Smart Scale application submitted



Organizational Options



- **CSPDC as grant applicant/contracting entity**
 - Operation by contracted operator
 - Vehicles leased or owned by operator
- **Regional provider as grant applicant/administrator and service operator**
 - Leased vehicles

For both options: A regional stakeholder advisory committee would be formed



Next Steps

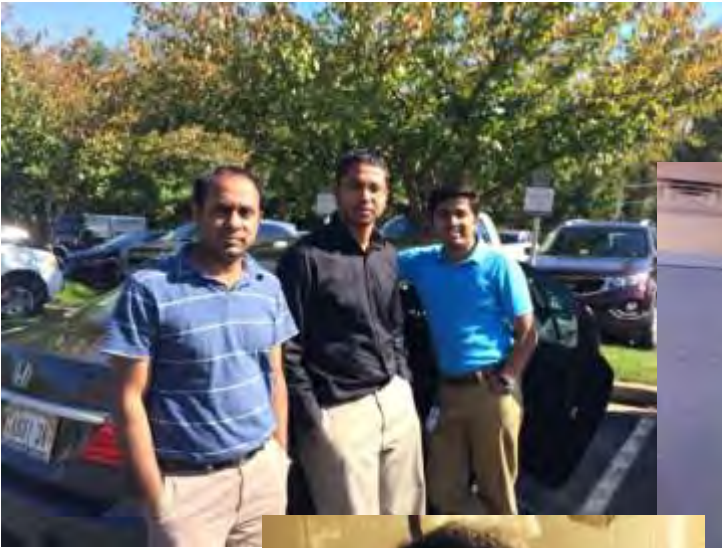
- Development of final service and organizational plan
- Development of implementation plan



RideShare: It's nice to share!

A program of the Thomas Jefferson Planning District
Commission in cooperation with the Central
Shenandoah Planning District Commission

D-126

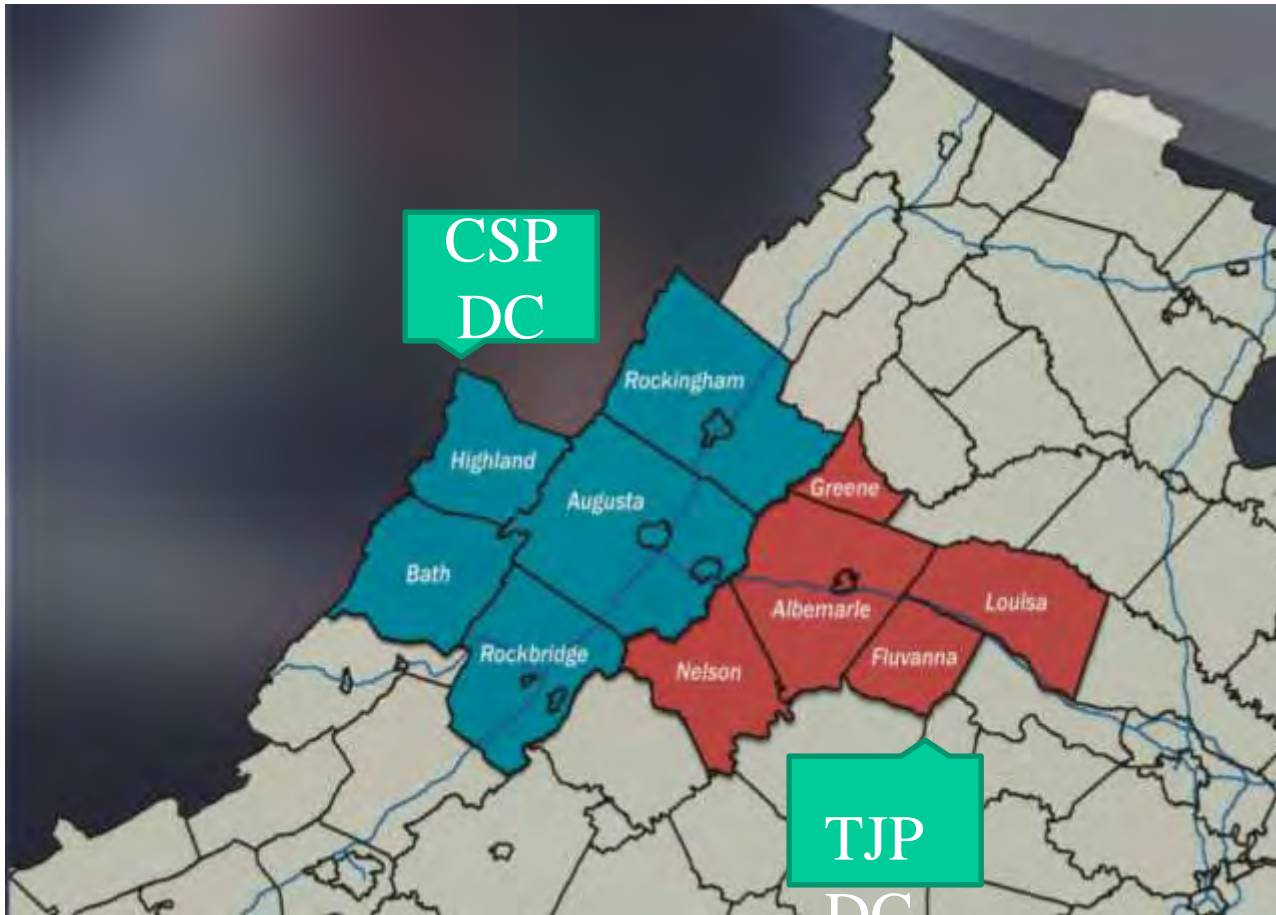




Introduction

- RideShare works to help reduce traffic congestion by decreasing the number of single occupant vehicles
- A program of the TJPDC
- Expanded to CSPDC in 2009
- Serves anyone commuting into or out of the TJ Planning District (City of Charlottesville, Counties of Albemarle, Fluvanna, Greene, Louisa, Nelson) and Central Shenandoah Planning District (Counties of Augusta, Bath, Highland, Rockbridge, and Rockingham, and the Cities of Buena Vista, Harrisonburg, Lexington, Staunton, and Waynesboro)

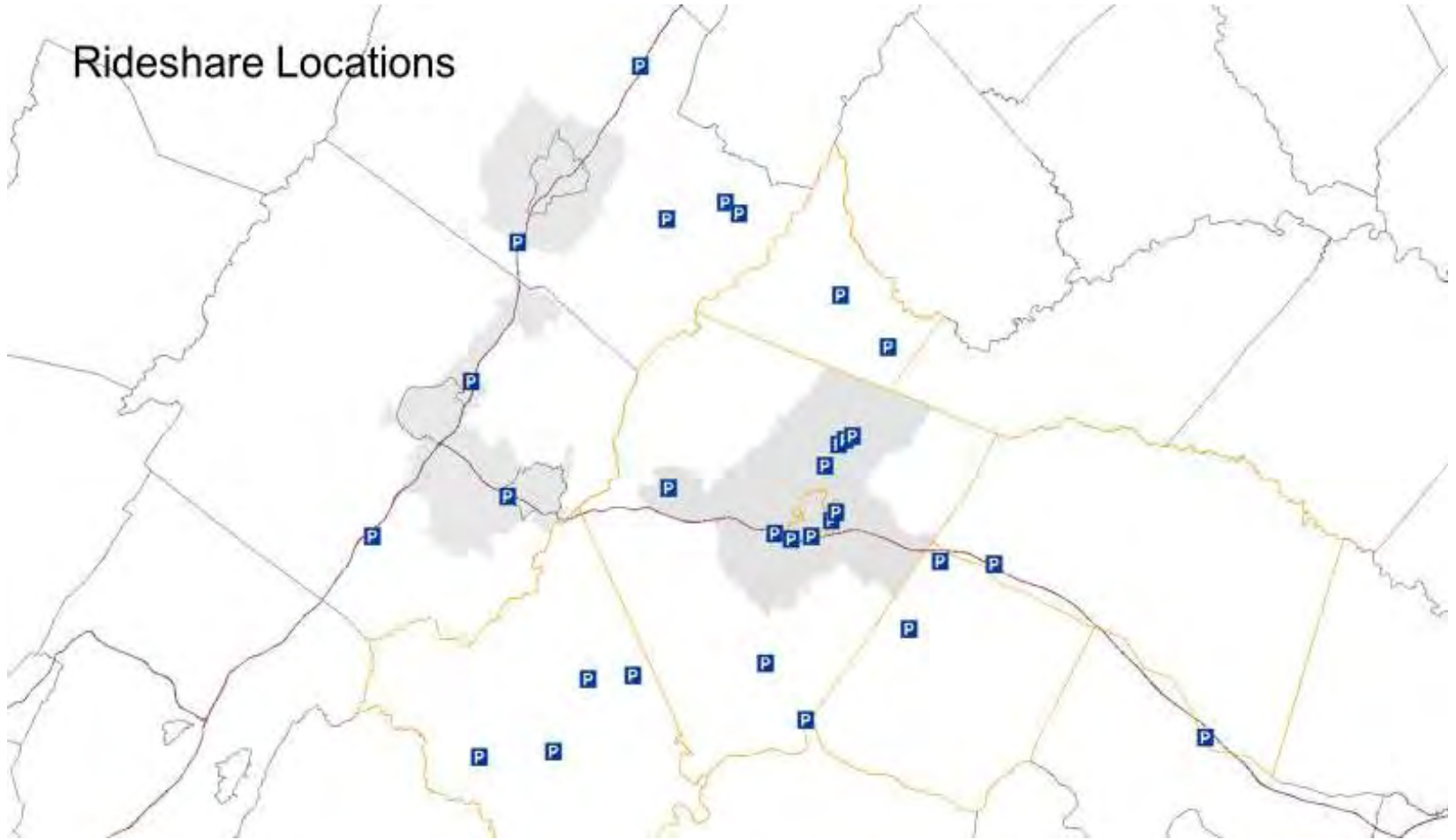
RideShare Coverage Area



Services

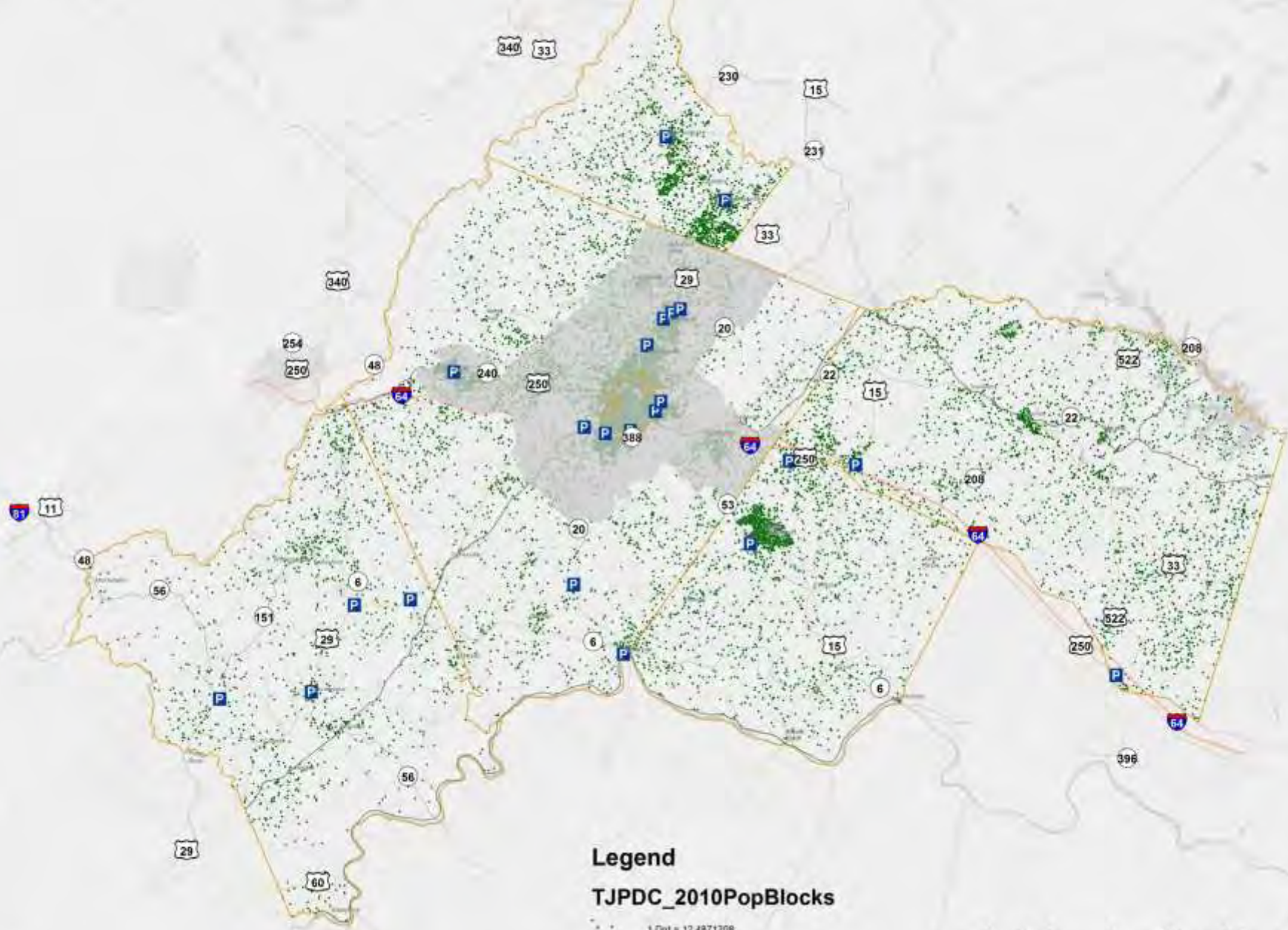
- Car/vanpool matching
- SchoolPool
- Guaranteed Ride Home Program
- Park and Ride lot information & marketing
- Transportation referral for the region (Commuter Information toll-free number and website)
- Employer services

Rideshare Locations

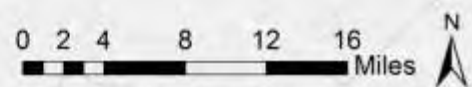


Park & Ride Lots & Pop. Density

D-134

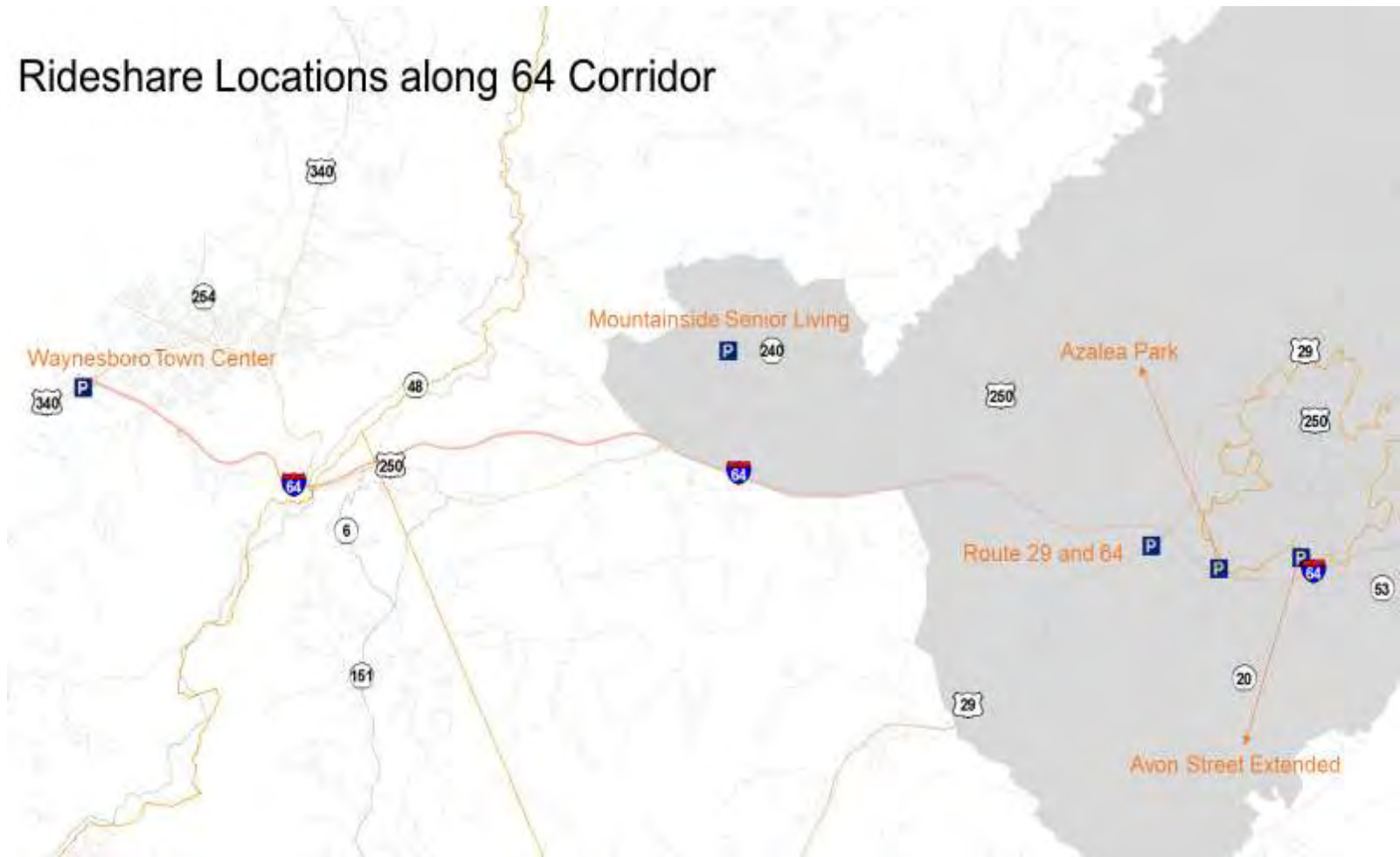


Legend
TJPDC_2010PopBlocks
 1 Dot = 12,487,1208
 P0010001

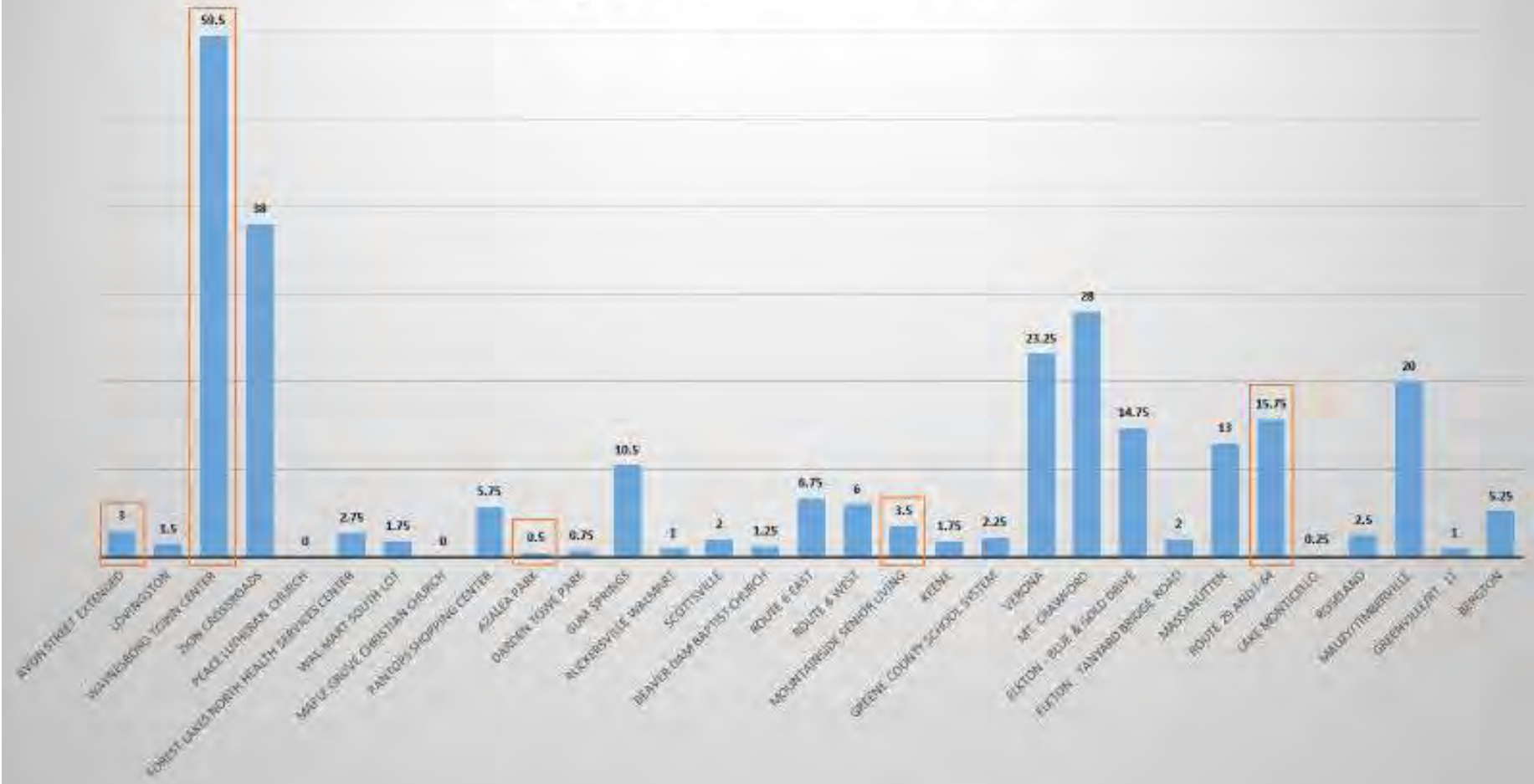


Map: HERE, DeLorme, Mapbox, © OpenStreetMap contributors, and the GIS user community

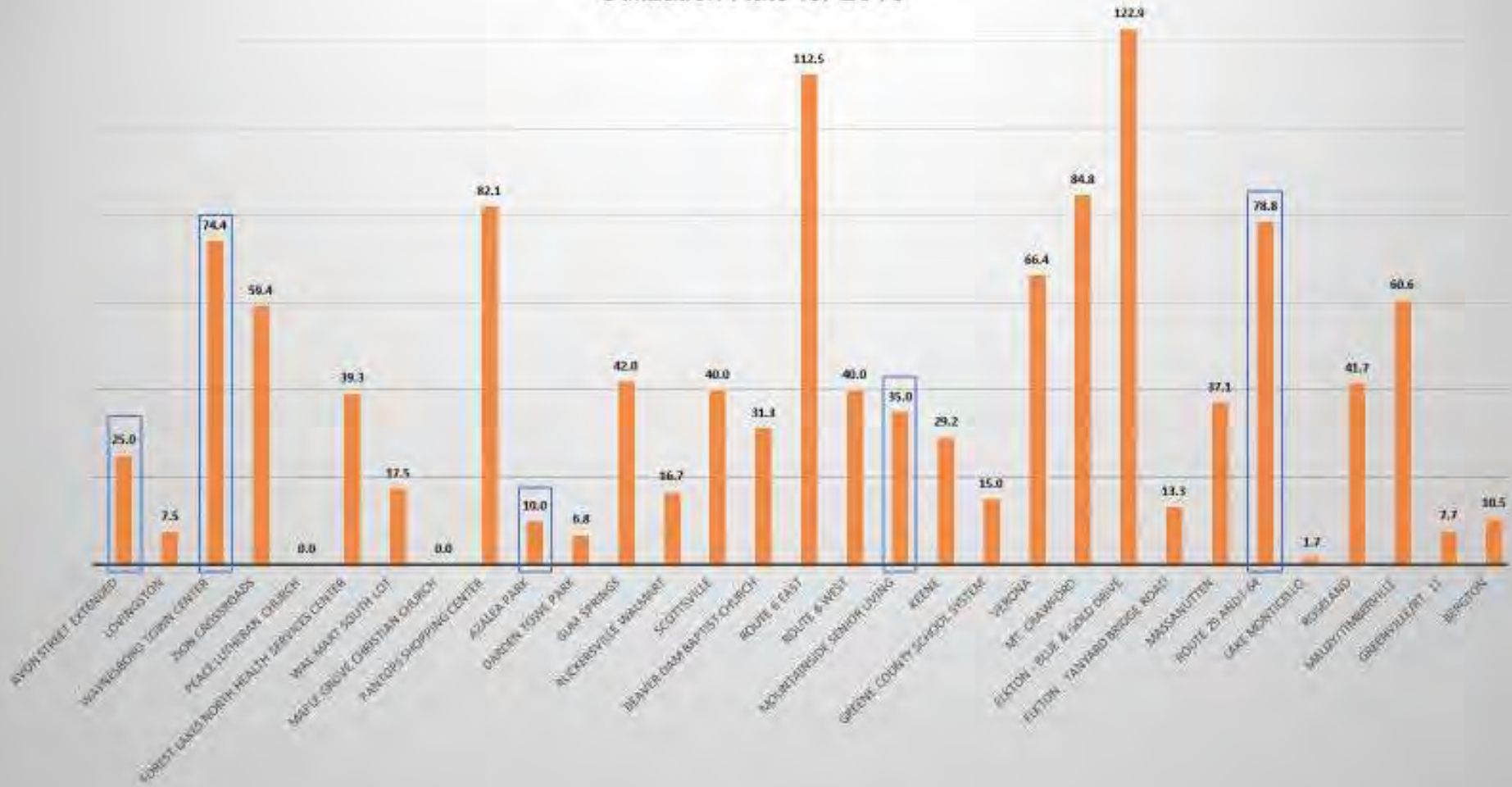
Rideshare Locations along 64 Corridor



Average Parking Spaces Filled for 2016



Utilization Rate for 2016





Find a ride match at www.rideshareinfo.org

The screenshot displays the 'RIDESHARE ADMINISTRATION - RIDEMATCH RESULTS' page. At the top, there is a navigation bar with 'HOME' and 'LOG OUT' buttons, and a welcome message for 'LISA HORANY'. Below this is a menu with options like 'SYSTEM ADMIN', 'EMPLOYER ADMIN', 'RIDESHARE ADMIN', 'COMMUTER ADMIN', 'POOL ADMIN', 'SPECIAL EVENTS', and 'REPORTS'. The left sidebar contains 'RIDESHARE ADMINISTRATION' with sub-links for 'FIND A RIDEMATCH', 'VIEW RIDEMATCH HISTORY', and 'ADD NOTES'. The main content area shows 'MATCH CRITERIA' for a commuter named SIMON HORANY, with details on starting and destination addresses, search radius, work schedule, and flexible arrival/departure times. Below the criteria are buttons for 'VIEW MAP', 'VIEW MATCH LIST', 'VIEW / EMAIL MATCH LETTER', 'VIEW DIRECTIONS', and 'MODIFY SEARCH'. The bottom section features a 'RIDEMATCH MAP' with a street view of Charlottesville, VA, showing a route between two points marked 'A' and 'B'.

rideshARE HOME LOG OUT

Welcome LISA HORANY
Questions? Call 1-202-962-3333

SYSTEM ADMIN EMPLOYER ADMIN RIDESHARE ADMIN COMMUTER ADMIN POOL ADMIN SPECIAL EVENTS REPORTS

RIDESHARE ADMINISTRATION - RIDEMATCH RESULTS

MATCH CRITERIA

Commuter Name: SIMON HORANY
Starting Address: 106 WESTERLY AVE CHARLOTTESVILLE VA 22903
Destination Address: 1609 UNIVERSITY AVE VA 22903
Radius for Search Criteria: 1 miles around origin and 1 miles around destination.
Work Schedule: 08:00:AM to 05:00:PM
Flexible To Arrive: 60 minutes before or 60 minutes after
Flexible To Leave: 60 minutes before or 60 minutes after

VIEW MAP VIEW MATCH LIST VIEW / EMAIL MATCH LETTER VIEW DIRECTIONS MODIFY SEARCH

RIDEMATCH MAP

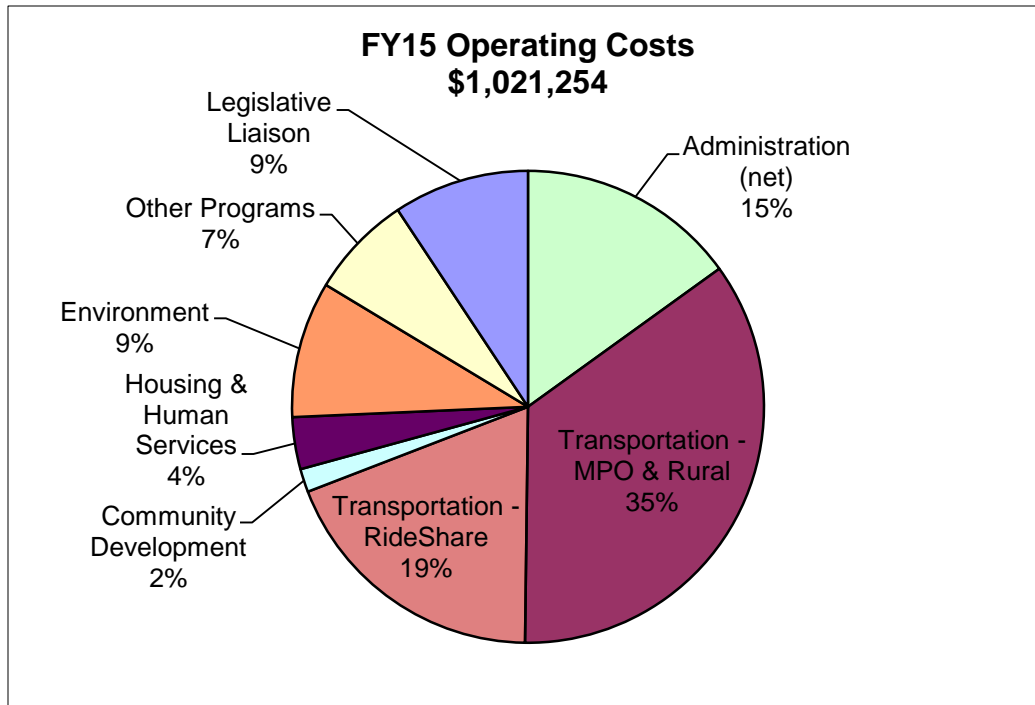
Map Satellite Hybrid Terrain

Use by Locality

- Active Data Base Registrants – 518 total
A - 126, C – 67, F - 42, G - 15, L - 25, N – 11
- Waynesboro/Staunton- 80
- CSPDC area- 145
- Average match rate is 51%
- Guaranteed Ride Home Registrants – 175 Total
A - 31, C – 31, F - 8, G - 10, L - 10, N – 10
- If everyone opted to carpool just one day a week,
the traffic on the nation's major highways and roads
would be reduced by as much as 20%.

A Major TJPDC Program

RideShare is part of the transportation program, which makes up the majority of TJPDC's Operating Budget. The RideShare program accounts for 19% of TJPDC operations.



RideShare Funding for FY15

DRPT Grant	\$137,200
Charlottesville	\$7,013
Albemarle County	\$15,892
Fluvanna County	\$4,098
Greene County	
Louisa County	\$5,276
Nelson County	\$2,380
Total	\$171,859

Grant for FY16 = \$139,258

Thank You!



Please visit www.rideshareinfo.org or contact RideShare for ways to reduce your transportation footprint!



Freight Operations study

I-64 WB MM 105 – 99

Matthew Shiley, PE
Regional Operations Director

March 30, 2017

Operations Problem ^{D-140}



- **I-64 Westbound**
 - From MM 105 to MM 99
 - Weekday evening Peak hours

- **Speed Differentials**
 - Steep grades
 - Mix of passenger vehicles and freight traffic

- **Lane Utilization**
 - Driver behavior (lane changing, braking, small gaps)
 - Existing law for trucks & comb. vehicles traveling below posted speed limit

- **Congestion**
 - Reduced speeds
 - Reduced travel time

Approach



- **Operational Analysis (2015-16)**
 - **Crashes**
 - **Grades**
 - **Traffic volume and mix**
 - **Speeds**
 - **Lane utilization**
 - **Truck climbing lane warrants evaluation (AASHTO)**

- **VISSIM Model (2016)**
 - **Model exiting traffic conditions**
 - **Evaluate potential solutions**

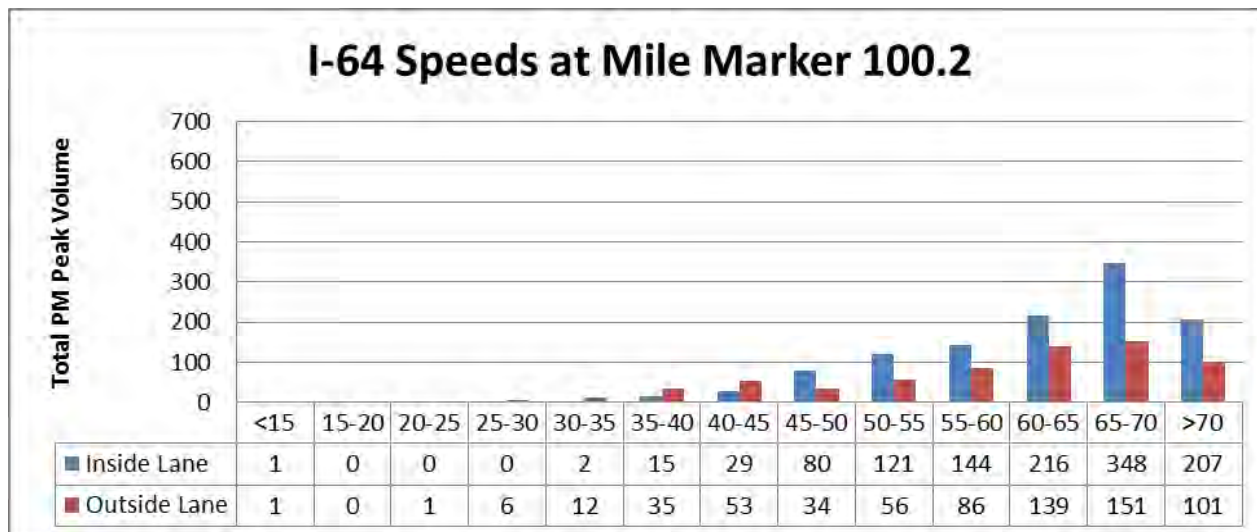
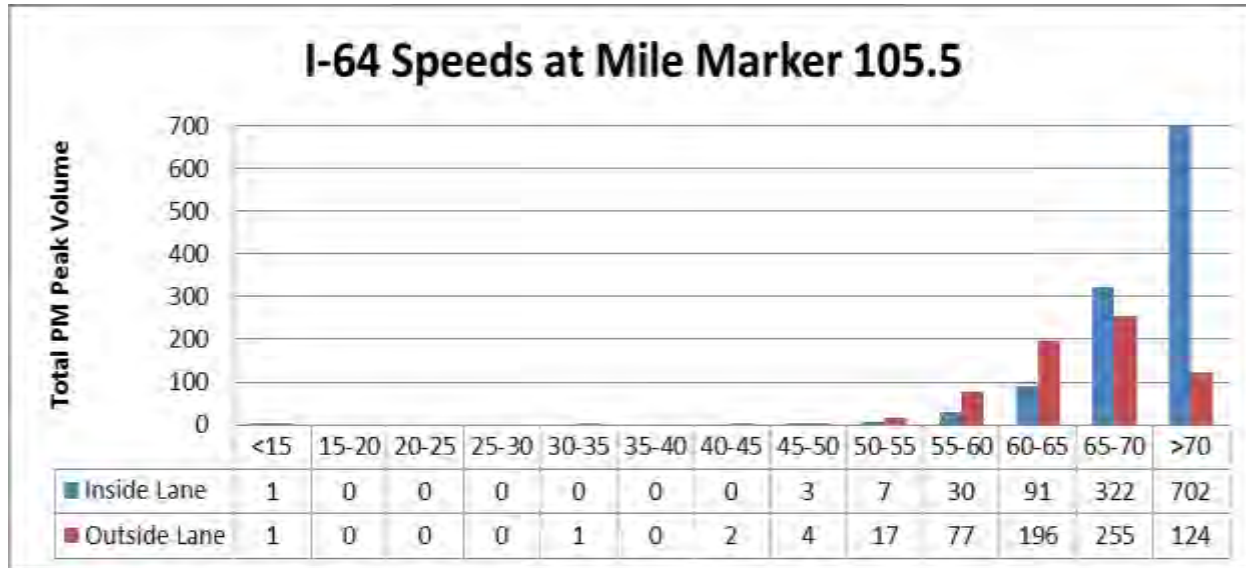
- Average Daily Traffic(ADT): 18,700 vehicles (14% Trucks)
- PM Peak Hour: 5-6 PM (M-F)
1,840 vehicles (9% Trucks)
- Posted Speed Limit: 65 MPH
- 85th percentile speed: +71 MPH
- MM105.5 to 100.2
 - Overall travel speeds decrease as vehicles travel uphill
- MM104 (5-6PM)
 - 73% (1,350) of vehicles are using the inside/left lane
- MM 100.2
 - 21% of vehicles traveling in the right/outer lane are traveling at speeds lower then 50 MPH

Findings

- **Consistent Pattern observed from data:**
 - **Non-Peak period—Truck Volume in left lane is lower than the truck volume in right lane**
 - **Peak Period (4:00-6:00 pm)---Truck volume in Left Lane exceeds the Right Lane truck volume**

- **Field Observations during PM peak period: Trucks that move to the left lane generally do so to overtake slow moving Trucks in the right lane**

Speed Comparison



5-Year Crash Analysis



➤ I-64 WB - MM 104 – 99

- 76 total crashes from 2010 – 2014
- 52.05 crashes per 100 Million VMT
 - +2.64% from Culpeper District Average
 - +20.28% from Staunton District Average
- No Fatal crashes
- 41% (31) Rear-End crashes (highest type)
- (7) Non-rear end; attributed to speed differentials

➤ 50% of all crashes Rear-end or speed related

AASHTO Climbing Lane for Multi-Lane Highways

If ONE of the following principles is satisfied, *consideration* of a truck climbing lane IS WARRANTED:

Critical Length of Grade: Length of grade exceeds the critical length of grade.

✓ Segment meets criteria

Service Flow Volume: Service flow volume is greater than 1,000 vehicles per hour per lane(vphpl) but less than 1,700 vphpl.

✓ Segment meets criteria

Operational Assessment (Level of Service): Existing level of service exceeds LOS D and would be improved one grade level with the addition of a truck climbing lane.

X Segment does not meet criteria

Traffic Model Findings

- **100% Truck Restriction on Left Lane was modeled**
 - **Left Lane impacts:** In the higher grades, average speed goes up in the left lane, compared to existing conditions; Speed difference is significant (5% increase), although less volume is processed.
 - **Right Lane impacts:** Speed difference is minimal over existing and more volume is processed
- **Average speed (Trucks & Cars combined) slows down around 3:00 PM and starts increasing around 7:00 PM**

Potential Solutions and challenges

- **Interim Solutions:** Upgrade existing signs and use Changeable Message Signs (CMS) to alert trucks to use the right lane
- **Monitor & Evaluate effectiveness**

Static Signage: Completed 2016



**CMS signs activated 3/23/17
(M-F; 3-7:00 PM)**

**TRUCKS BELOW 65MPH
USE RIGHT LANE ONLY**

- **CMS sign message at MM 102 & 104**
- **CMS sign at MM 110 displays travel time to I-81/Staunton**

Potential Solutions and challenges

- **Temporary Solution - FHWA Hard Shoulder Running**
 - <http://ops.fhwa.dot.gov/publications/fhwahop10023/chap4.htm>
 - Approval must be obtained from FHWA for Hard Shoulder Running
 - Providing Refuge/Pull-offs for breakdowns needed
 - The intent is for these facilities to be temporary in nature and not a permanent solution for long-term capacity provision
 - Requires an ITS system to operate dynamically
- **Construction of a westbound truck climbing lane.**
- **Funding**

QUESTIONS?

SHRP2 I-64 CORRIDOR

Waynesboro Economic Development

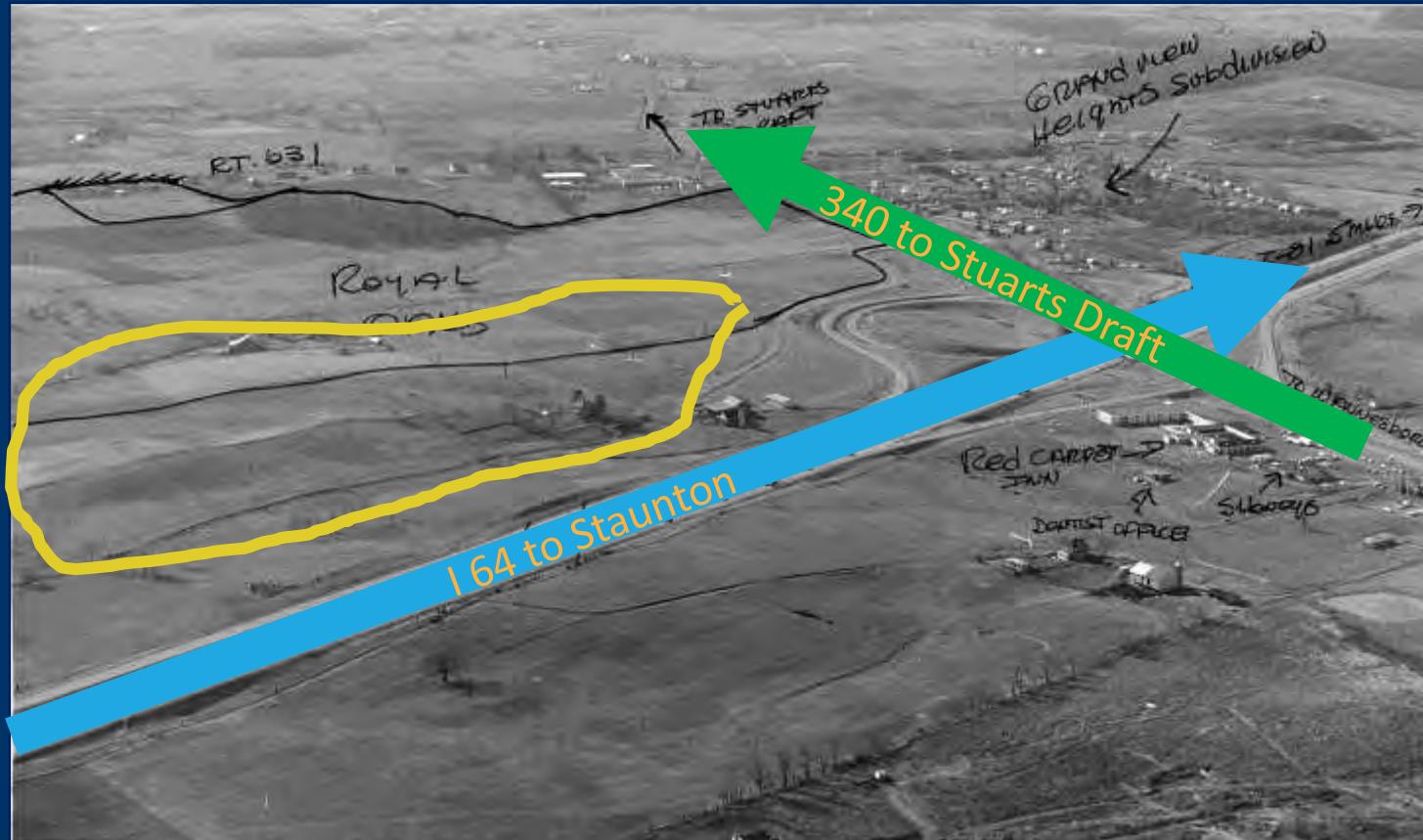
March 30, 2017



Orientation



Exit 94 – Circa 1980



Two Miles of Growth

CBD

94

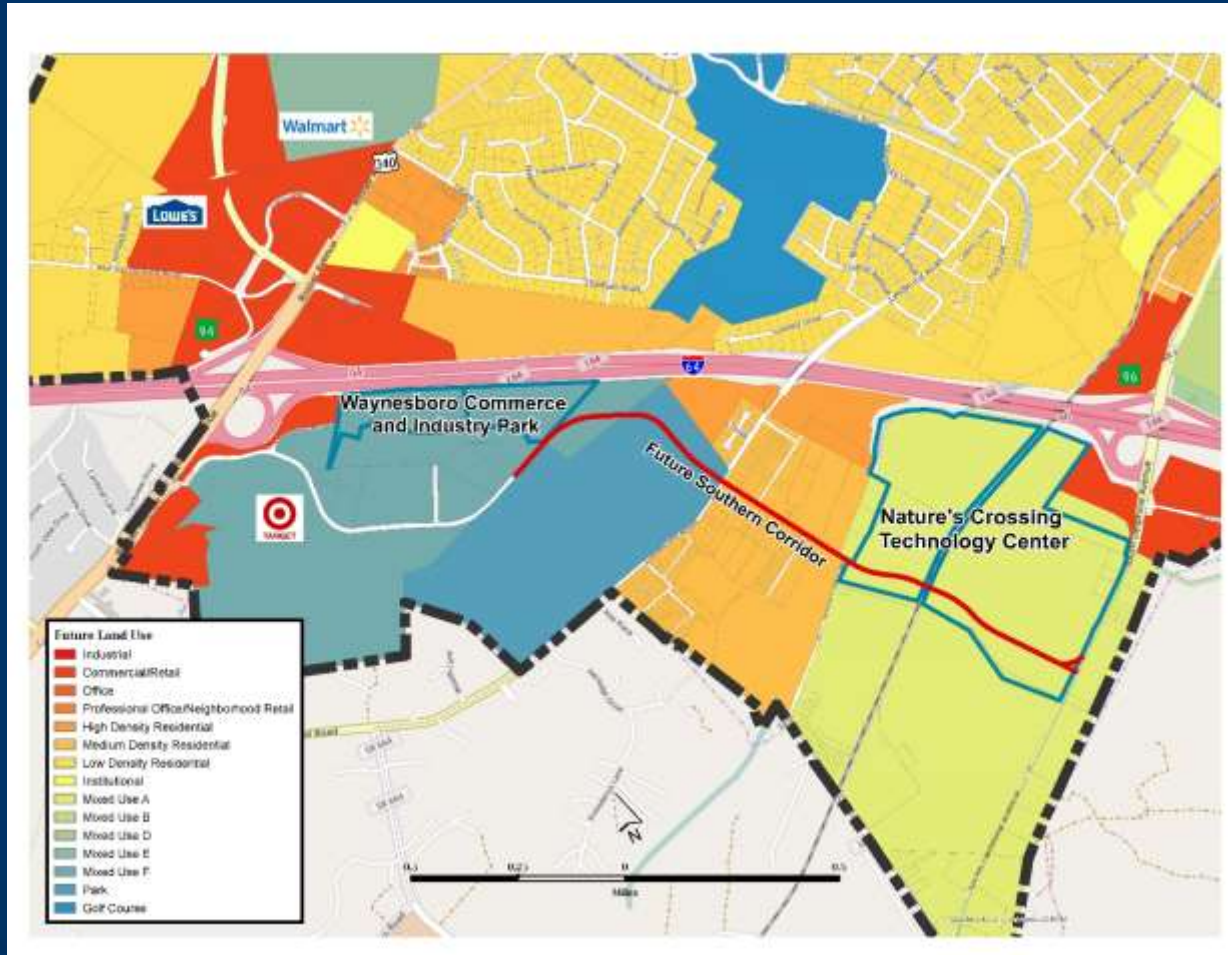
96





Waynesboro
VIRGINIA

Zoning





SHRP2 I-64 Corridor Study Working Group Meeting #4

May 31, 2017

1:00 PM to 3:00PM

Location: Virginia Regional Transit

51 Ivy Ridge Lane, Fishersville

Agenda

1. Introductions (5 minutes)

- Project team staff will lead the working group through brief introductions.

2. Project Update and PlanWorks (15 minutes)

- Summary of the March Working Group Meeting
 - i. Review of PlanWorks COR-4
 - ii. Corridor plan interactive map preview
- MPO Memorandum of Agreement update

3. Work Session: (90 minutes)

- *Park Management and Transportation needs— Sally Hurlbert National Park Service*
- *Vehicle Wildlife Conflict, reducing wildlife conflict through fencing – Bridget Donaldson VTRC*

BREAK (5 minutes)

- *Environmental Resources and Permitting - John Chiles VDOT Culpeper District*

4. Action Items & Next Steps

5. Upcoming Meeting Topic: Congestion and Traffic (problem areas)

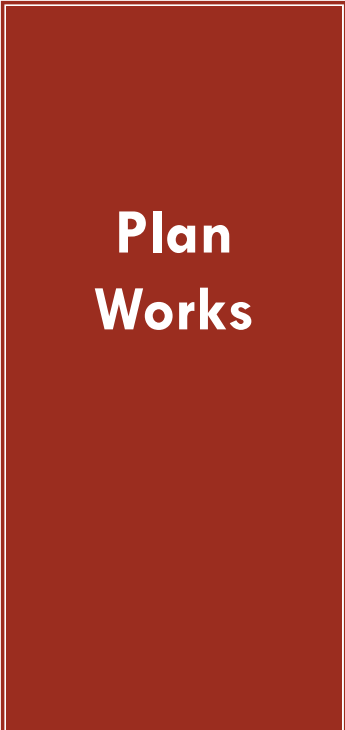
6. Next Meeting Date: July 26, 2017 at 1:00pm. Location Charlottesville TJPDC

SHRP2 Interstate 64 Corridor Plan

Shenandoah Piedmont area Collaborative
Effort (SPaCE)


Working Group Meeting #4

May 31, 2017



Corridor Planning Toolkit

- ▣ The Decision Guide streamlines the transportation process by systematically building in collaboration. It was developed using examples of successful practice and with input from all partners in transportation decision making.
- ▣ The Decision Guide was developed from 23 in-depth, detailed case studies (Including the CA-MPO 2040 LRTP TCAPP Process)

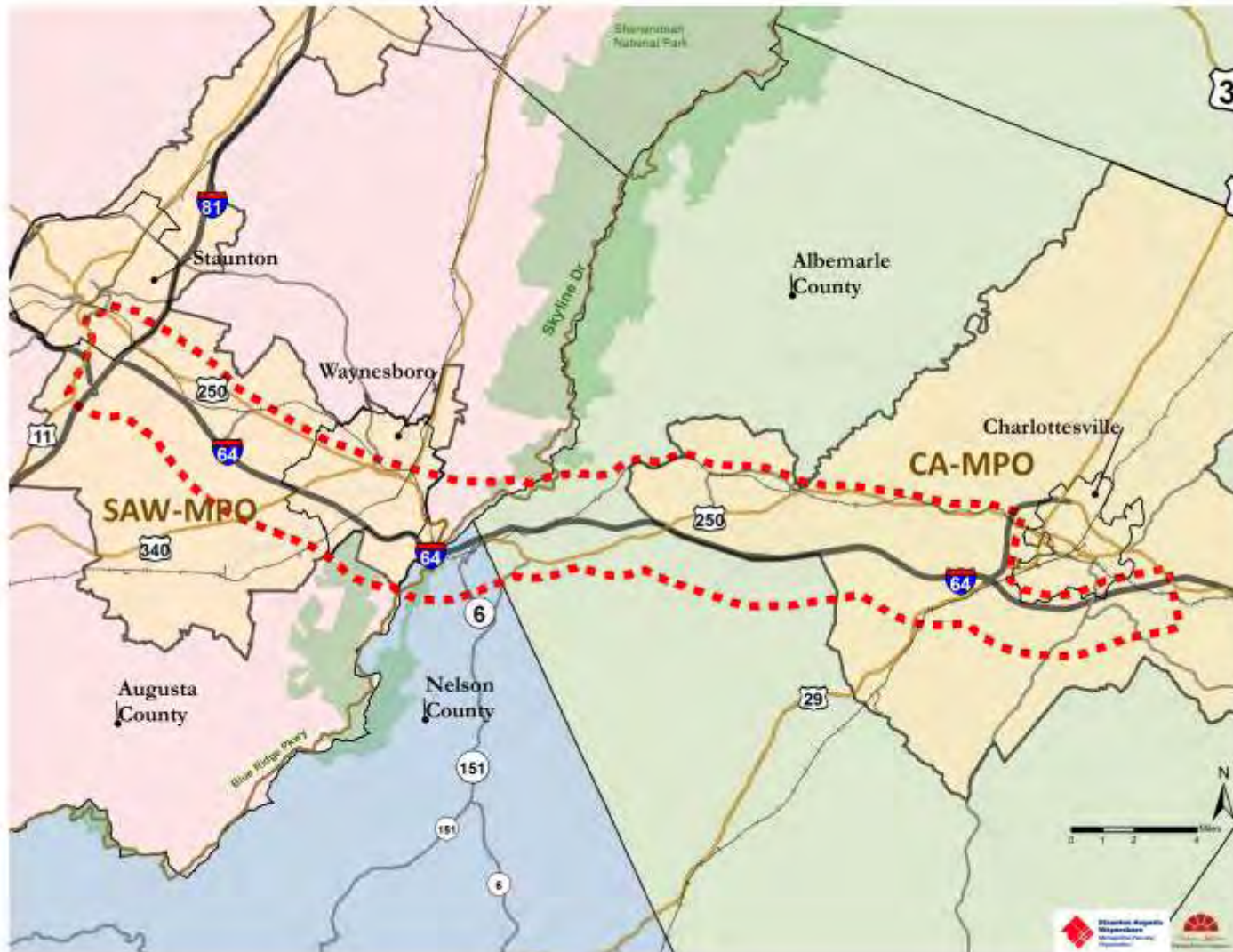
Corridor Planning								
 <p>COR-1 Approve Scope of Corridor Planning Process</p> <p>✓</p>	<p>COR-2 Approve Problem Statements and Opportunities</p> <p>✓</p>	<p>COR-3 Approve Goals for the Corridor</p> <p>✓</p>	<p>COR-4 Reach Consensus on Scope of Environmental Review and Analysis</p>	<p>COR-5 Approve Evaluation Criteria, Methods and Measures</p>	<p>COR-6 Approve Range of Solution Sets</p>	<p>COR-7 Adopt Preferred Solution Set</p>	<p>COR-8 Approve Evaluation Criteria, Methods and Measures for Prioritization of Projects</p>	<p>COR-9 Adopt Priorities for Implementation</p>

Project Scope

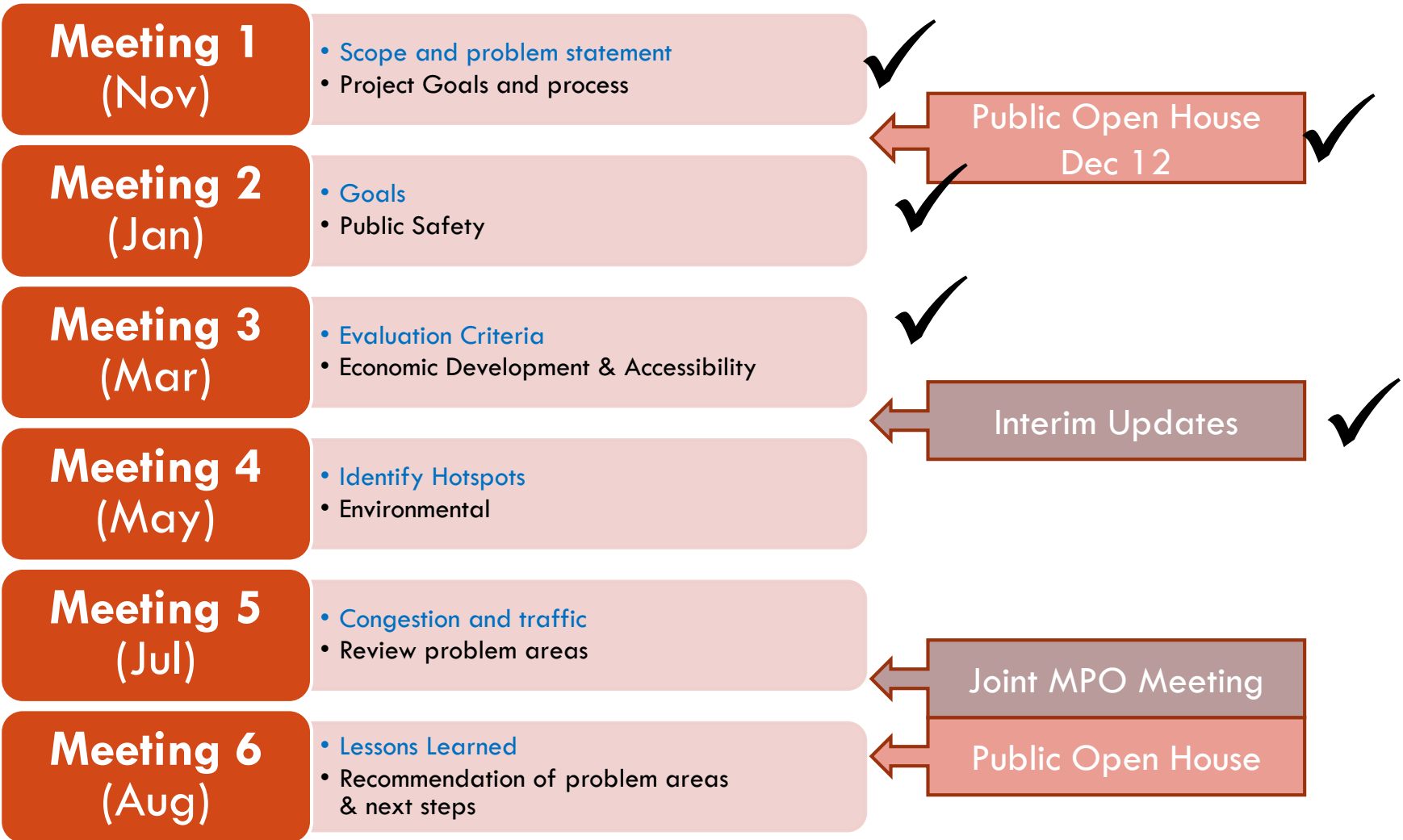
Scope

1. Open a dialog with interests in the I64 Corridor
2. Build an understanding of the issues through collaborative discussions and by engaging the experts
3. Use transportation performance measure to identify deficiencies in the corridor
4. Identify ways to improve collaboration and communication on issues of governance, maintenance and project identification
5. Document lessons learned and produce a final document that outlines deficiencies and concept level solutions

Project Study Area ^{D-161} REVISE MAP BOUNDARY



Working Group Meetings



COR-1

COR-1: Approve Scope and Process

First steps: coordinating partners and establishing formal lines of communications between groups that communicate infrequently. Evaluation of decision points and creating collaborative decision-making across multiple disciplines and tiers of government will be included.

Deliverables: Draft Scope to guide planning process; Aggregate data repository.

Outcomes:

- The geographical scope
- Technical Scope
- Web Data Repository

<http://campo.tjpd.org/i64-corridor/>

COR-1

Scope of
Corridor
Planning Process

COR-1 Outcomes

Geographic Scope



COR-1 Outcomes

- The Technical scope is based on meeting the regional need of improving the safe efficient movement of **goods** and **people** through the study corridor. Due to the corridor being super-regional in nature the technical aspects of the corridor study focus heavily on improving inter-governmental and inter-agency communication, coordination, and facility management.
- Data Repository A project specific webpage has been set up within the Charlottesville Albemarle MPO domain. <http://campo.tjpd.org/i64-corridor/>. The site includes information about the project, an interactive map, and a growing inventory of corridor related studies GIS and reports.

COR-2

COR-2: Approve Problem Statements/Opportunities

SPaCE will engage facilitated collaborative meetings, focused stakeholder groups, public input sessions and multi-media engagement to identify a common understanding of the issues and seek partner and stakeholder identification of problems and opportunities.

Deliverables: Work towards agreement among stakeholders on the deficiencies and potential opportunities. Staff collaborating with the Working Group have identified the following deficiencies:

COR-2

Problem
statement and
opportunities

COR-2 Deficiencies

- Safety
 - Crashes
 - Speed
- Peak hour congestion
 - Congestion at key exits
 - Traffic at Afton caused by slow moving heavy vehicles
 - Commuter demand
- State of good repair
 - Roadway pavement conditions
- Accessibility
 - Transit
 - Carpooling
- Land Use
 - Housing affordability
 - Jobs and housing mismatch

COR-3

COR-3: Goals

Process: elicit stakeholder perspective and partner approval on the comprehensive set of transportation, community and environmental goals. Focus will be regional outcomes of reducing congestion, improving safety and enhancing multi-modal options in the corridor supported by access to comprehensive data. Outcome: Develop a list set of goals guiding the selection of a set of solutions addressing opportunities and deficiencies.

Deliverables: Draft goals

COR-3

Approve goals
for the corridor
project

COR-3 Corridor Goals

1. **Improve** the overall function of the corridor by increasing the efficiency and safety of which goods and people move through the corridor.
2. **Facilitate** communication among MPOs, Local Governments, VDOT and DRPT on planning issues in the corridor.
3. **Minimize** the impact that any projects have on natural resources and the environment.

Status Update

- Project Webpage – **Completed**
- Draft MOU – **Draft Completed**
- Database of Plans and Studies – **Draft interactive map published**
- Draft Corridor Study Report – **Filling In outline and Data**
- Joint MPO Meetings – **Hosted 1 of 2**

MPO MOU

MPO MOU

- Between the CA-MPO and the SAW-MPO
- Focuses on how we can better integrate our planning for the corridor
- Provide support when seeking funding for corridor related projects
- Provides a framework for future cooperation and Joint Meetings

MPO MOU

MPO MOU

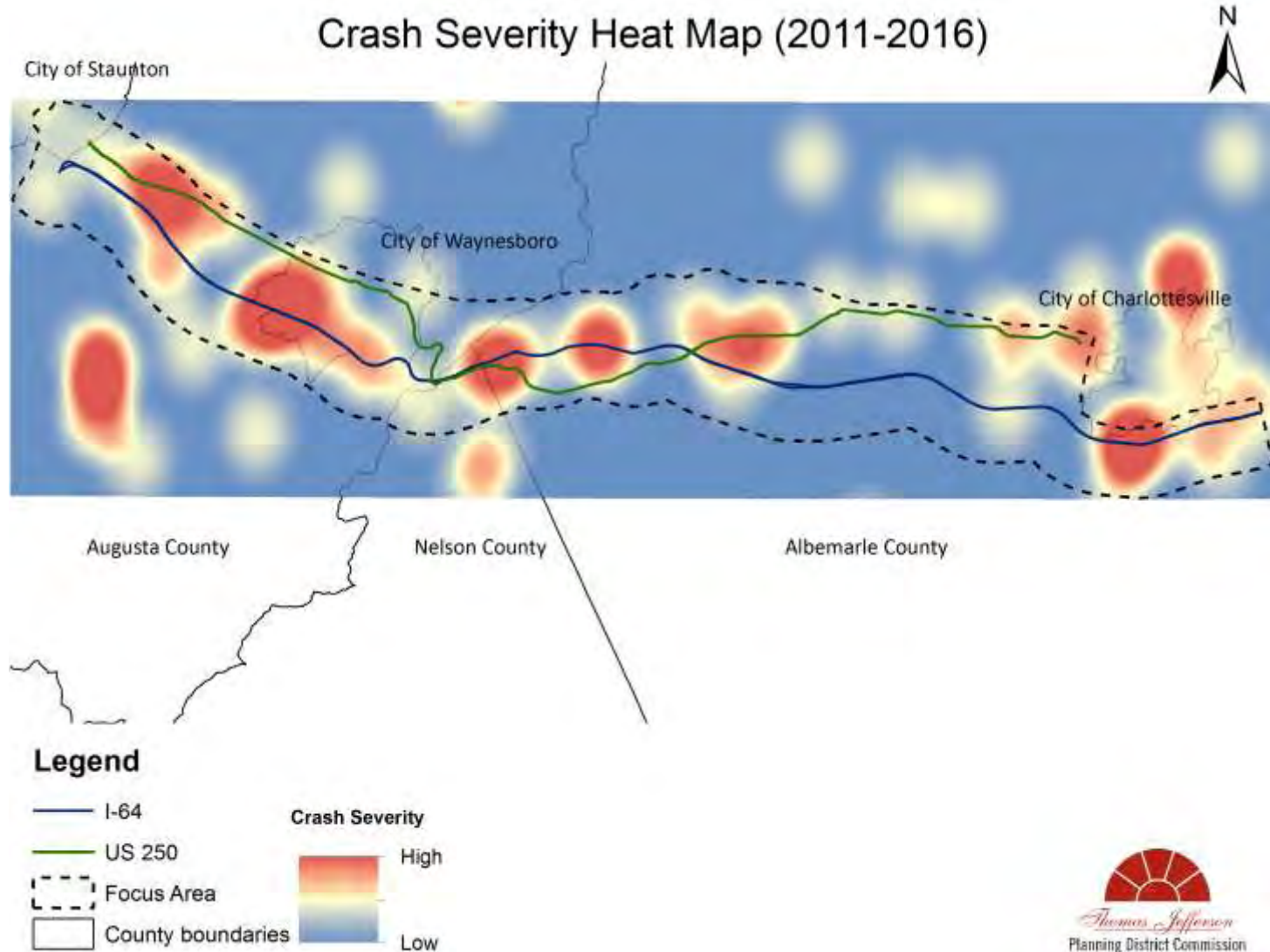
- Has been reviewed by MPO committees
- Comments provided by VDOT (Districts)
- Planned adoption of the MOU at September joint MPO meeting.

Next Steps

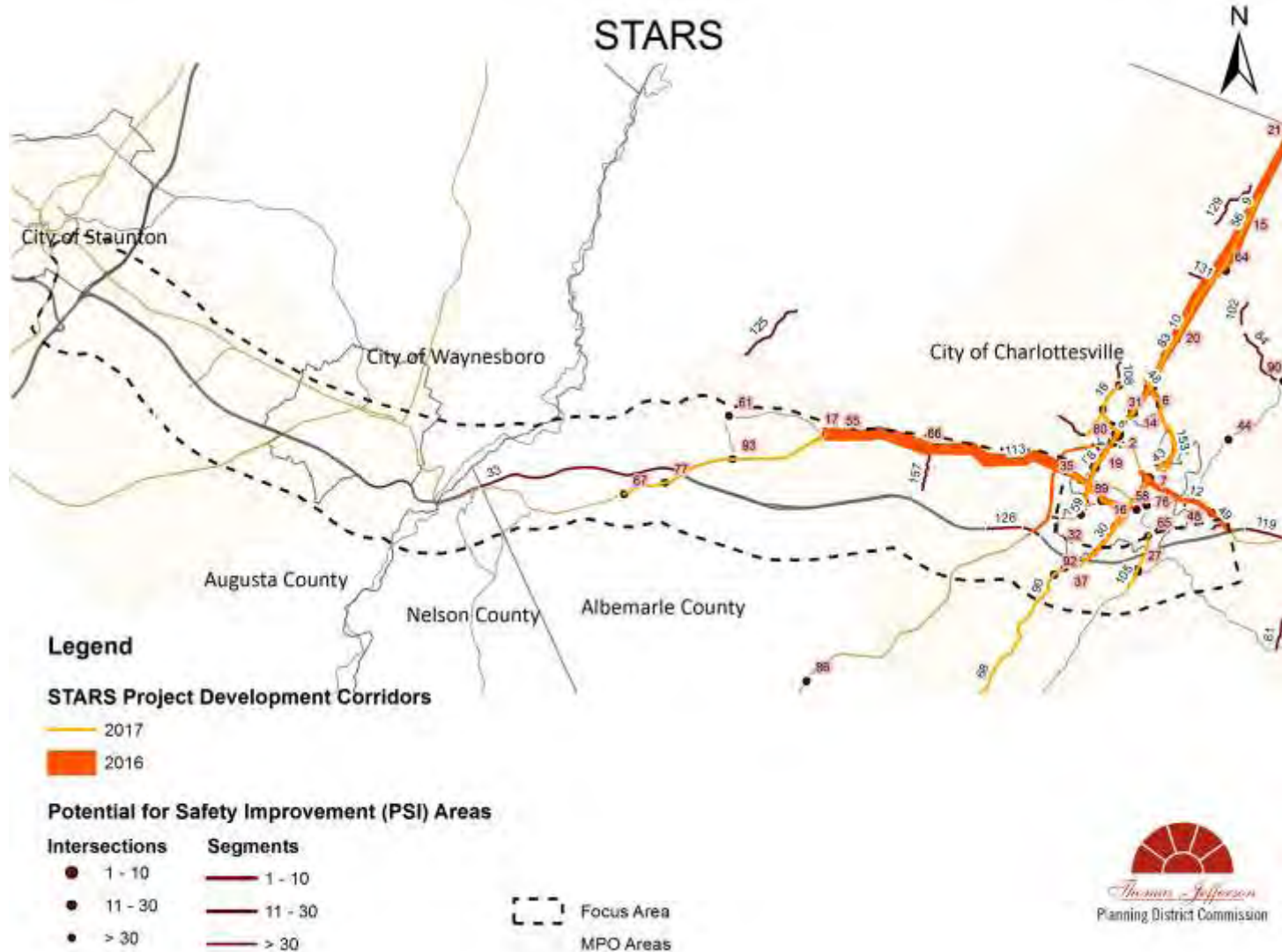
Next Steps

- ❑ Next working group meeting July 26 (Charlottesville)
- ❑ Draft MOU for review by Policy Boards
- ❑ Work through remaining CORs
- ❑ Finalize analyses of hotspots & deficiencies with input from VDOT
- ❑ Develop draft plan and report

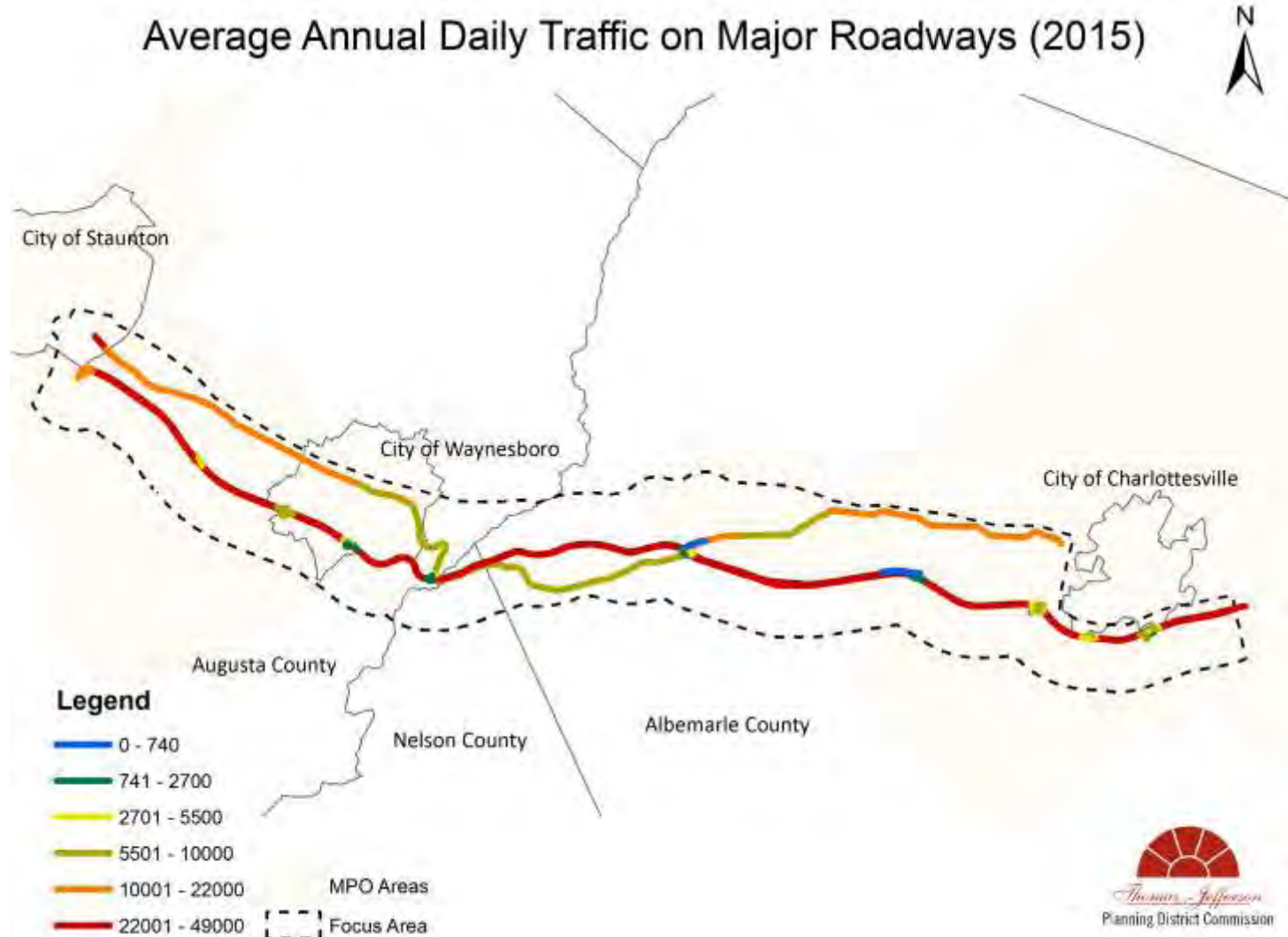
Hotspots - Safety



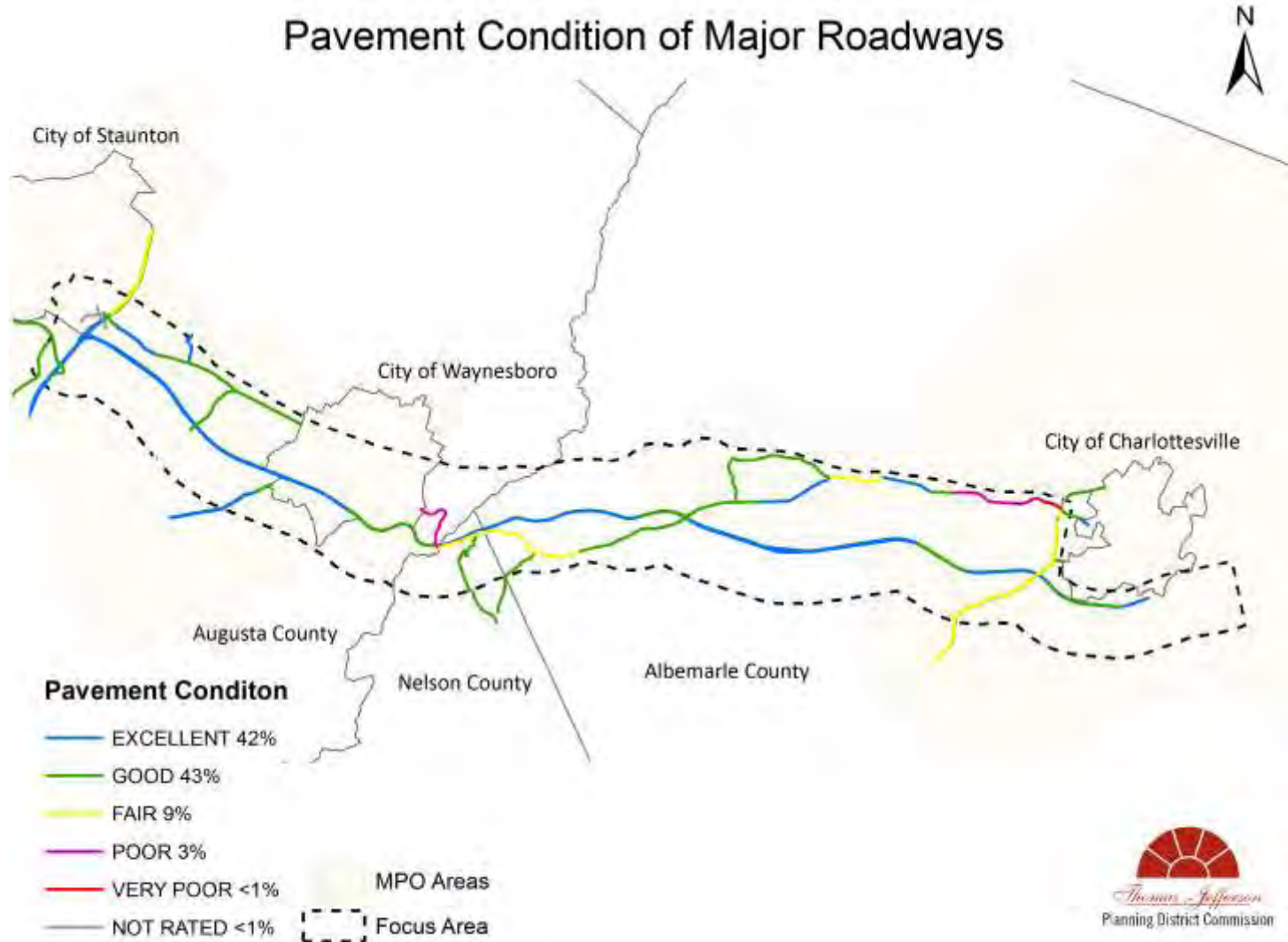
Hotspots -STARS



Hotspots - Congestion



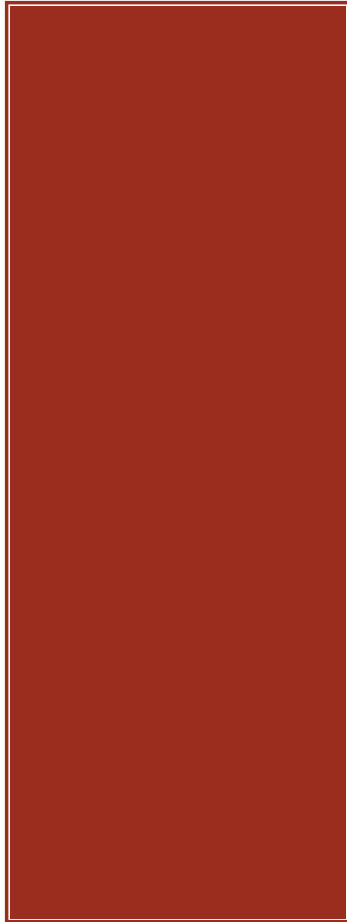
Hotspots – Pavement Conditions



Proposed Projects in the Corridor

- Truck Climbing Lanes
- Park and Ride lots
- Transit
- Intersection Improvements
- Interchange Improvements

Interactive Project Summary Map



- <https://tjpdcm.maps.arcgis.com/apps/MapJournal/index.html?appid=4409d504cad47a9b125f4d7003670c4>

D-180

QUESTIONS

Thomas Jefferson Planning District Commission

401 East Water Street
Charlottesville, VA 22902

Wood Hudson
Senior Planner

Resources: <http://campo.tjpd.org/>

Animal-Vehicle Collision Research and Mitigation

I-64 Charlottesville-Waynesboro

Bridget Donaldson

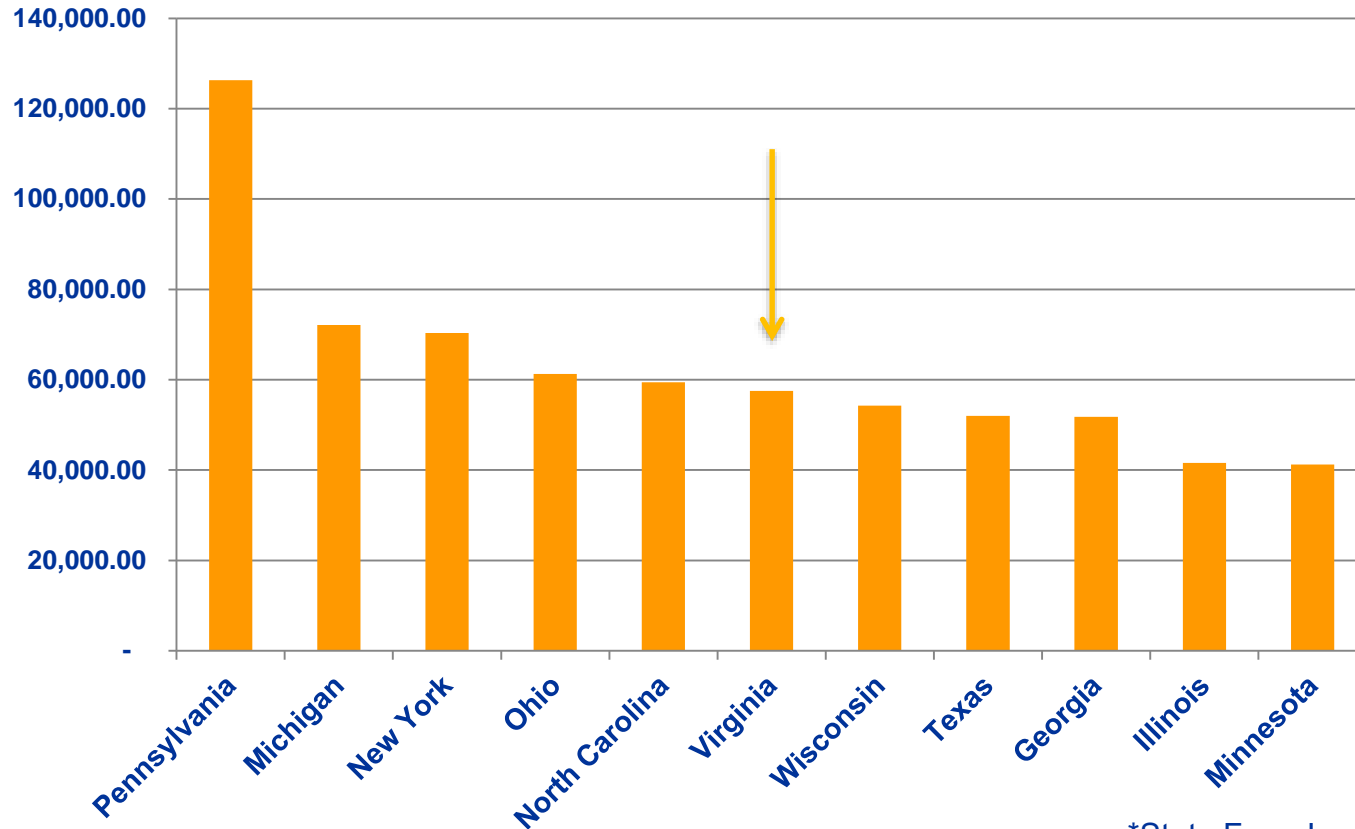
Senior Research Scientist

Virginia Transportation Research
Council



States with Most Deer-Vehicle Collisions ^{D-182}

(July 2014 - June 2015)*



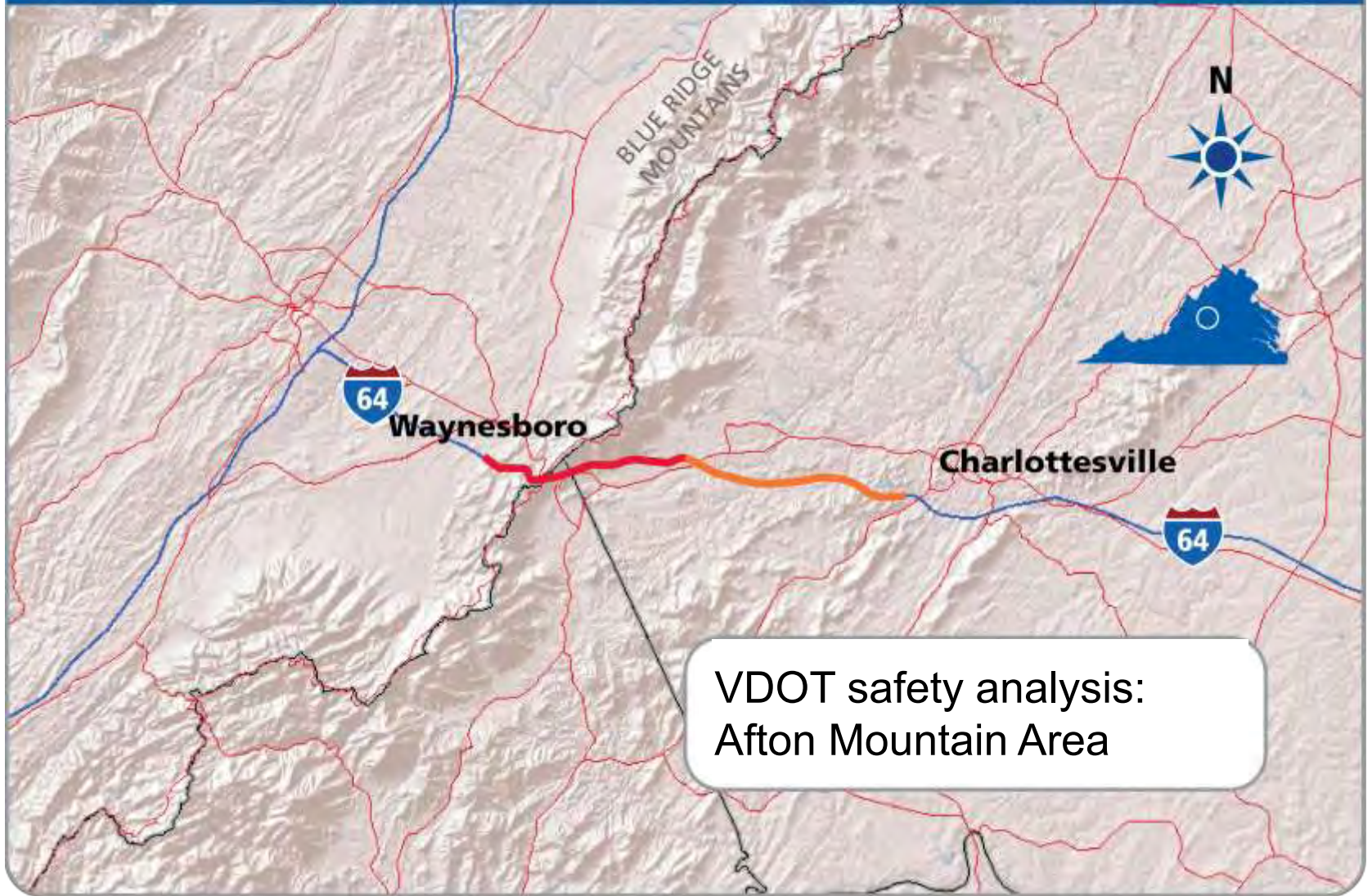
*State Farm Insurance projections for the entire insurance industry. Includes deer, elk, and moose

1.25 million DVCs in the U.S.

VDOT spends ~ \$4.1 million/year on carcass management

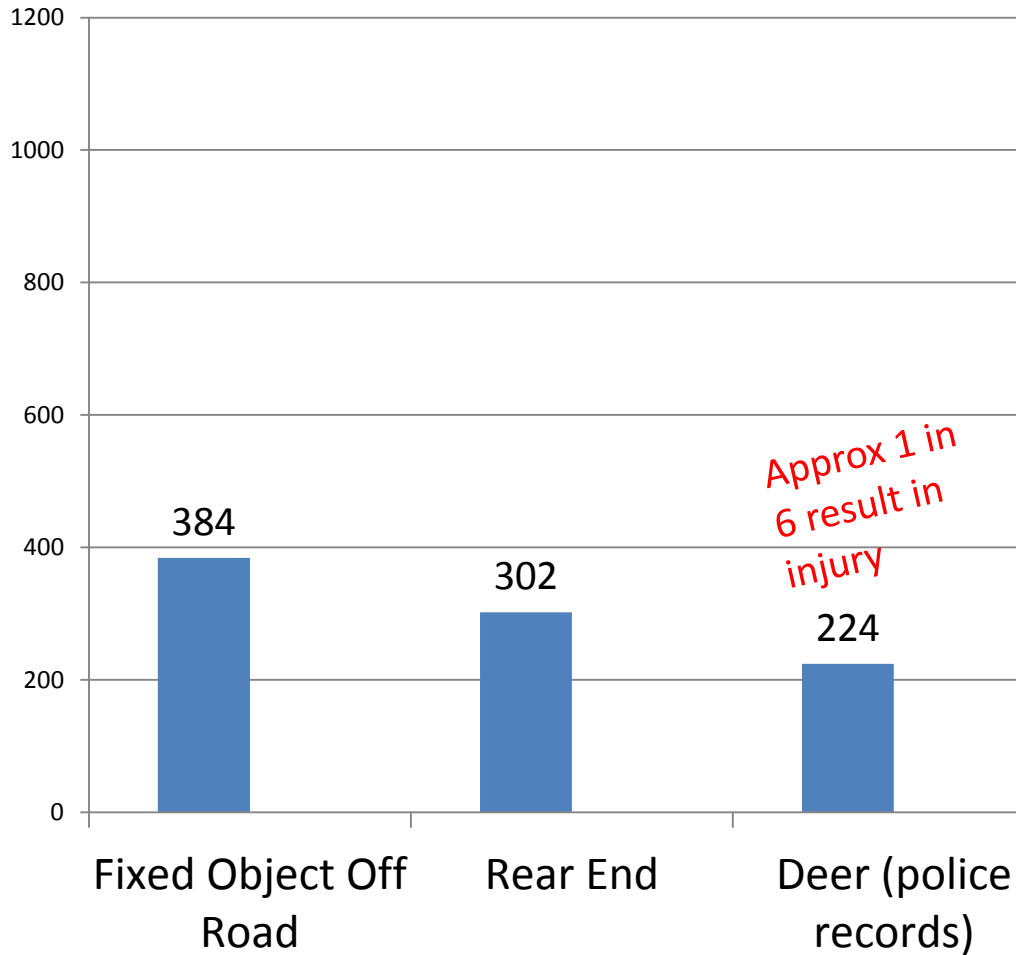


I-64 Safety Improvement Area: MM 97 – 105



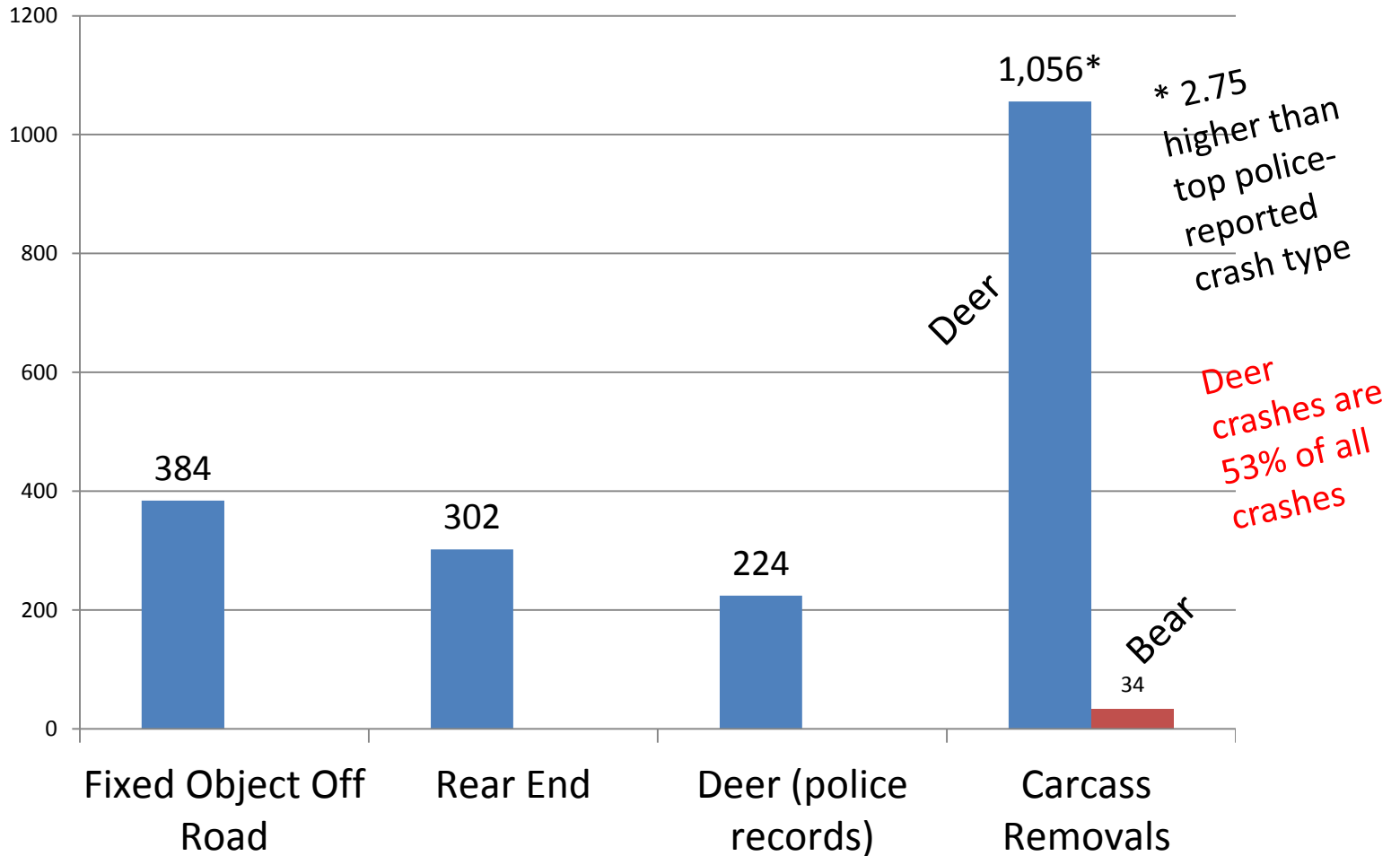
Collision Types

Staunton to Charlottesville, I-64 MM 87-118 (2012-2016)

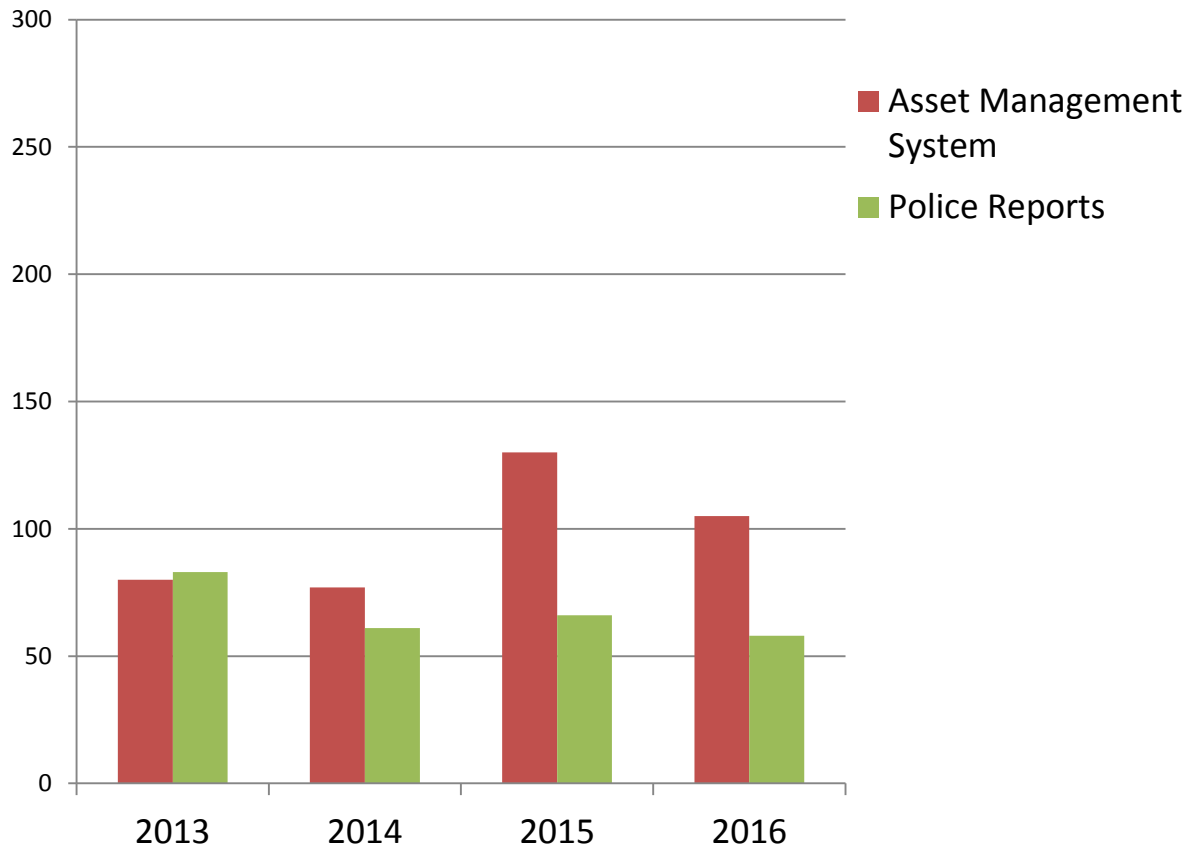


Collision Types

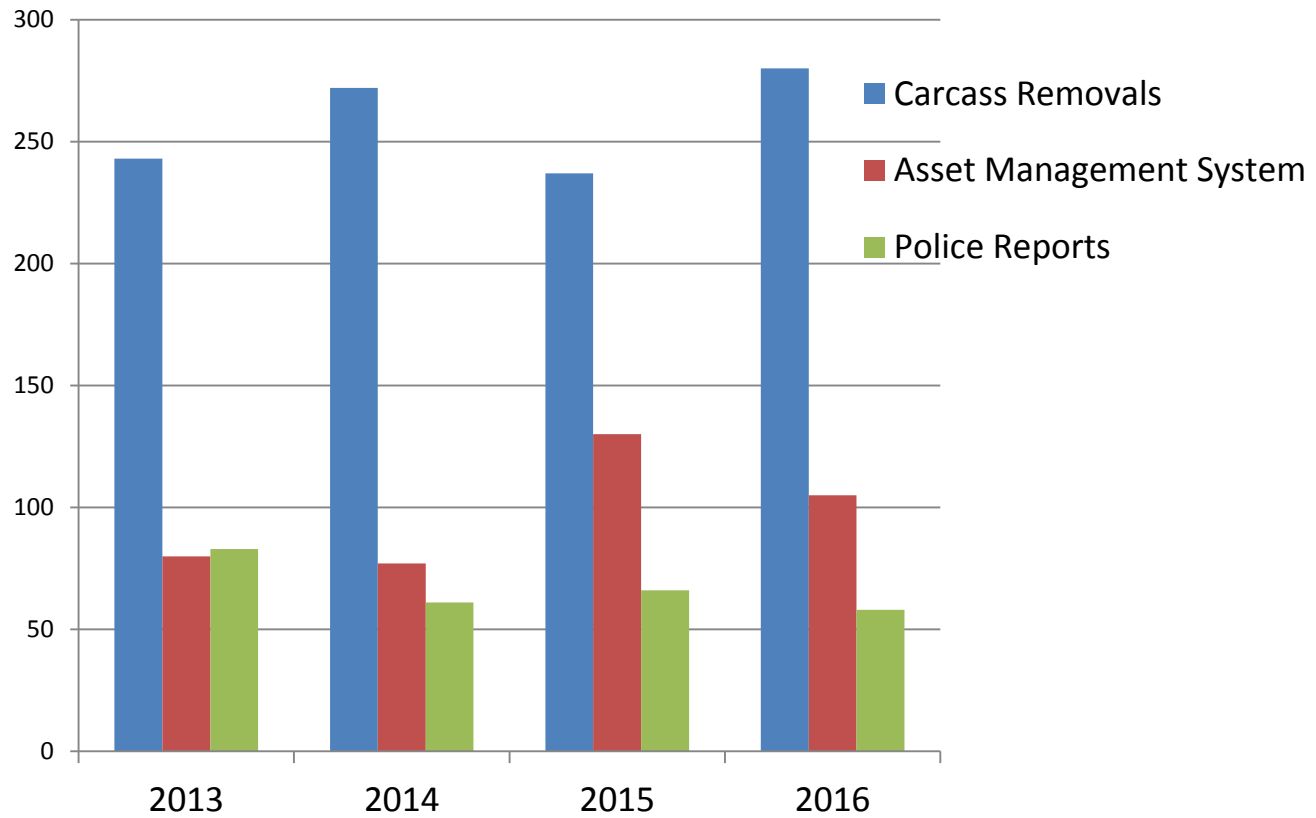
Staunton to Charlottesville, I-64 MM 87-118 (2012-2016)



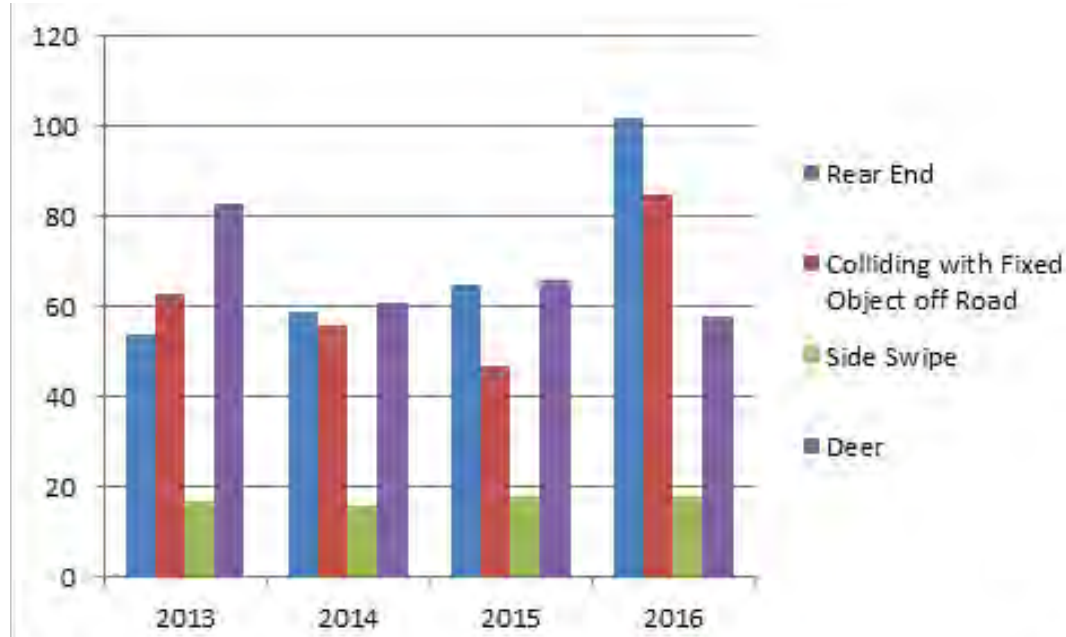
Deer Crash Data I-64 in Albemarle County (MM 102 -131).



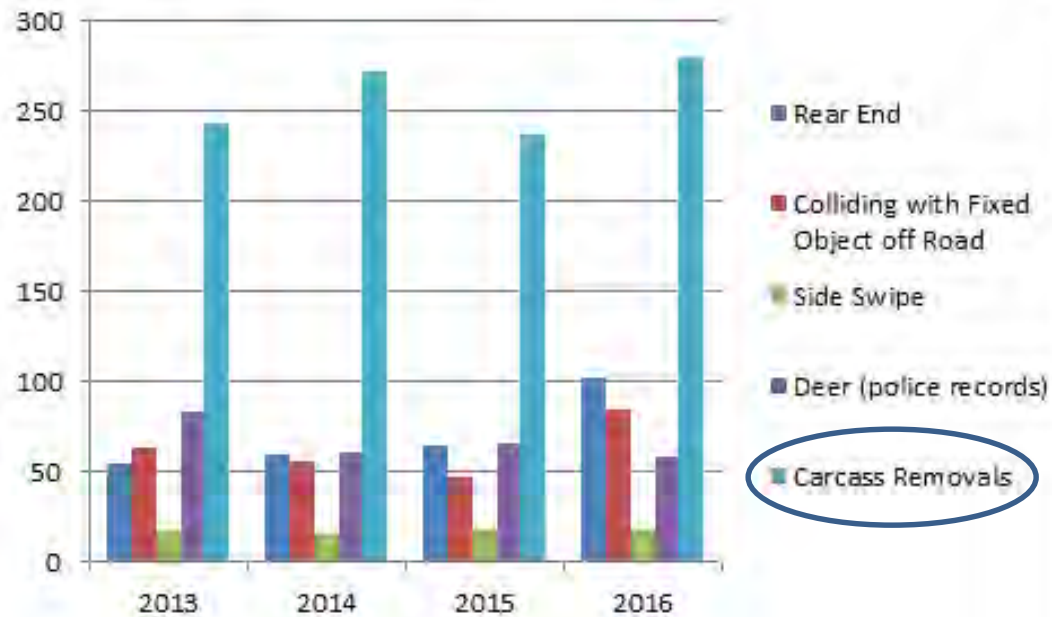
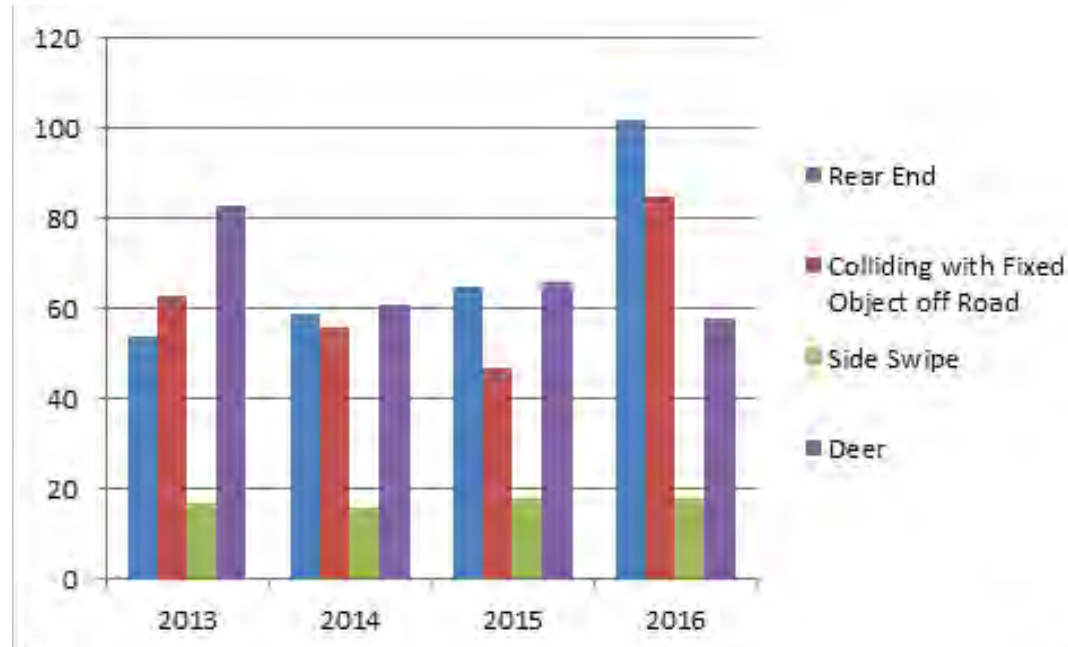
Deer Crash Data with Carcass Removals I-64 in Albemarle County (MM 102 -131).



Collision Types, I-64 in Albemarle County

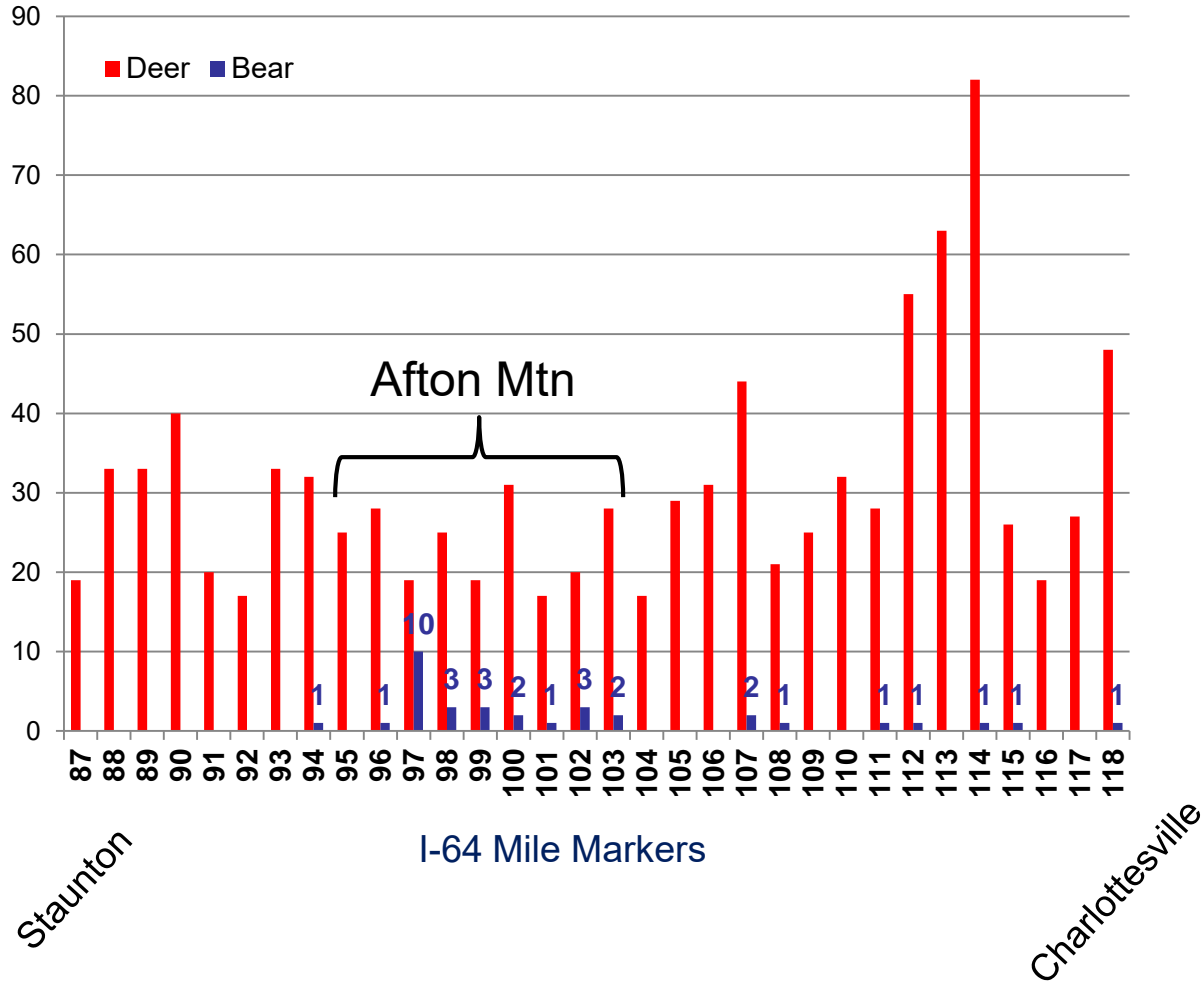


Collision Types, I-64 in Albemarle County

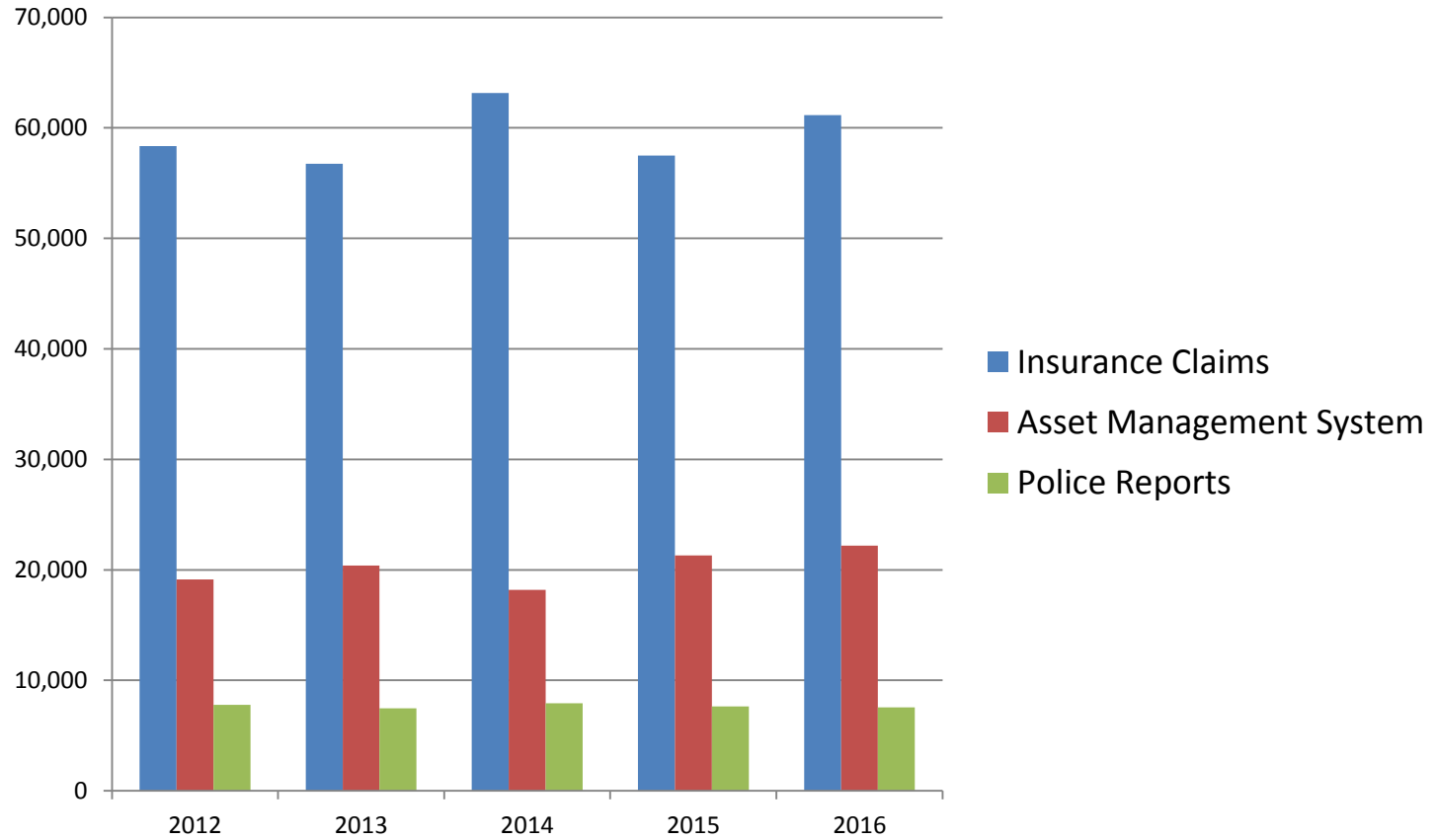


**Working on means to collect carcass removal data statewide*

Deer and Bear Carcasses (1 mi segments) 2012-2016

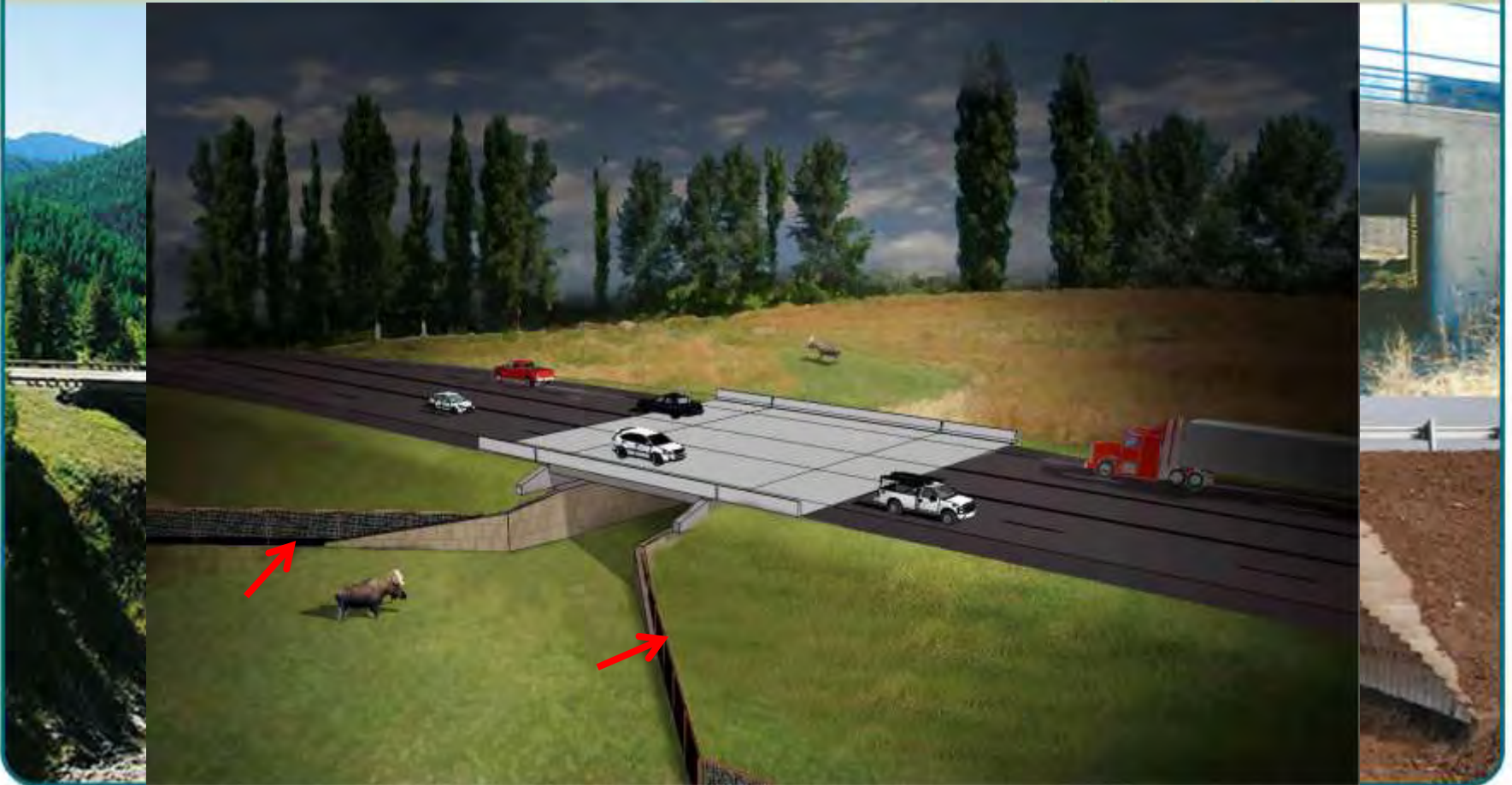


Virginia Deer Crash Data (2012 – 2016)



Effective Mitigation

Underpasses/overpasses with fencing: 86% DVC reduction



Study Background



- The U.S. road system includes more than 582,000 bridges longer than 20 feet, 480,000 of which are over waterways.*
- The road system also includes millions of smaller structures, many of which serve as passageways for wildlife.*
- Because these structures were not designed for wildlife passage, they have no fencing.

Research is needed to establish how retrofitting an *individual* existing underpass with fencing affects AVCs and the use of the structure.

First, data is needed to support fencing recommendations

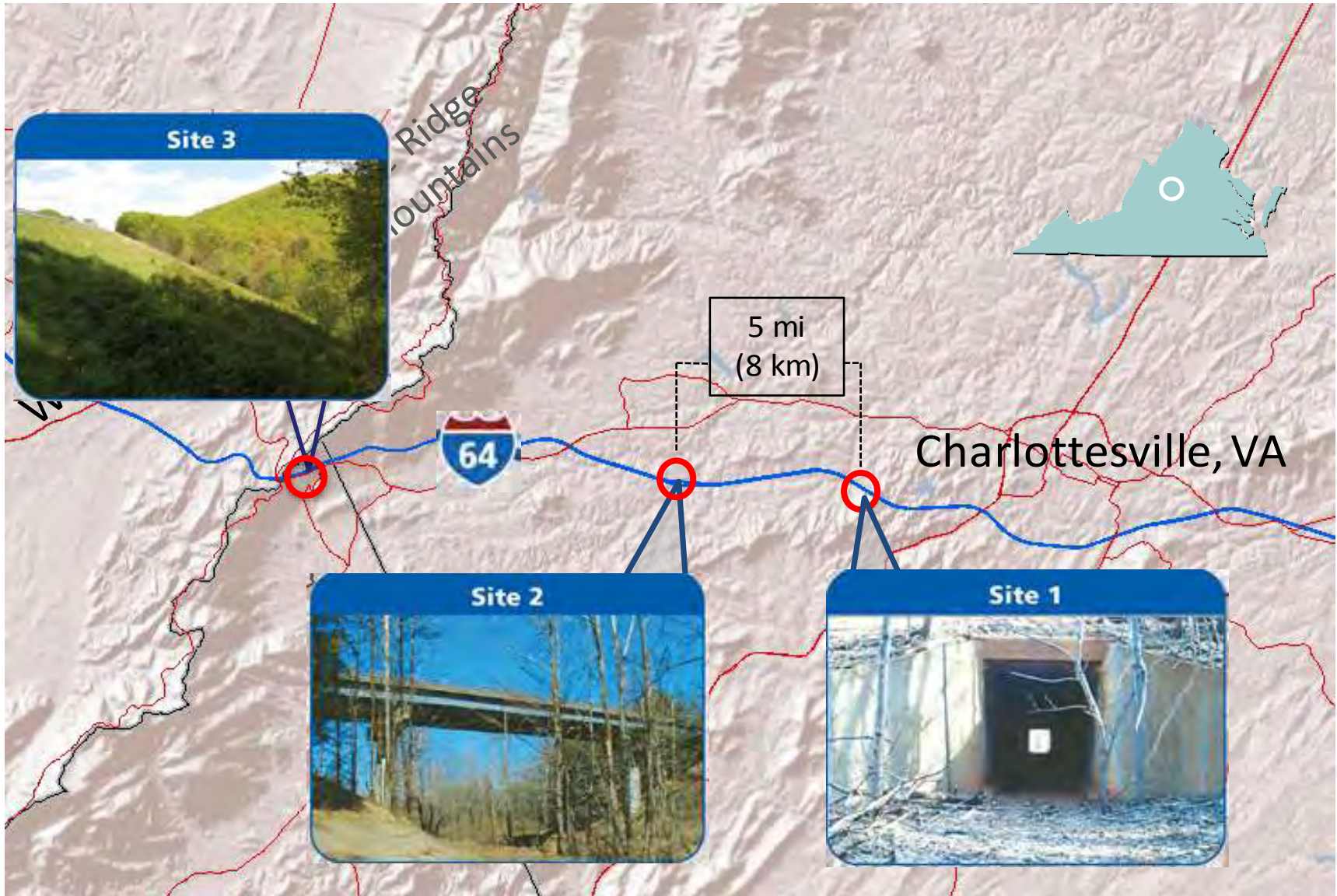


Purpose of Study

Evaluate **activity** and **behavior** of white-tailed deer and other wildlife along

- (1) unfenced isolated underpasses and
- (2) a forested riparian corridor with no viable underpasses





6/1/2017

307 ft span

10 x 12 ft openings
189 ft long



Methods

- Collect carcass removal data (2012-present)



Date	Mile Marker	Animal Desc.
10-1-14	94 WB	Raccoon
10-2-14	90 90.9 WB	Deer
10-2-14	163.3 163.3 EB	Raccoon
10-6-14	135.7 WB	Deer
10-6-14	135.9 WB	Deer
10-6-14	132.8 WB	Deer
10-6-14	117 WB	Deer
10-6-14	116.9 WB	Deer
10-6-14	110.8 WB	Deer
10-6-14	111 WB	Deer
10-6-14	99.5 WB	Deer
10-6-14	128.2 EB	Deer
10-6-14	165 EB	Deer
10-7-14	151.3 EB	Raccoon
10-6-14	114 EB	Deer
10-7-14	158.9 EB	Deer
10-7-14	100.7 EB	Deer
10-6-14	101 107 WB	Deer

- Monitor study sites with cameras



Camera Monitoring (2 yrs)

52 cameras deployed March 2013



Camera Monitoring^{D-198}

Primary questions:

Underpasses

- Wildlife use of the underpasses (full crossings vs turning back)
- Activity and behavior along the adjacent roadside
- Roadside activity relative to distance from the underpass

Drainage Corridor with no underpass

- Activity and behavior of wildlife at drainage/interstate intersection compared to farther away from intersection



D-199

Site 2 16 cameras



Camera
Arrow indicates
direction



0.5 mile



Site 3

Forested
Riparian
Corridor

D-200

Rock wall

Rock wall



RESULTS

Deer and Bear Carcasses 2013-2014

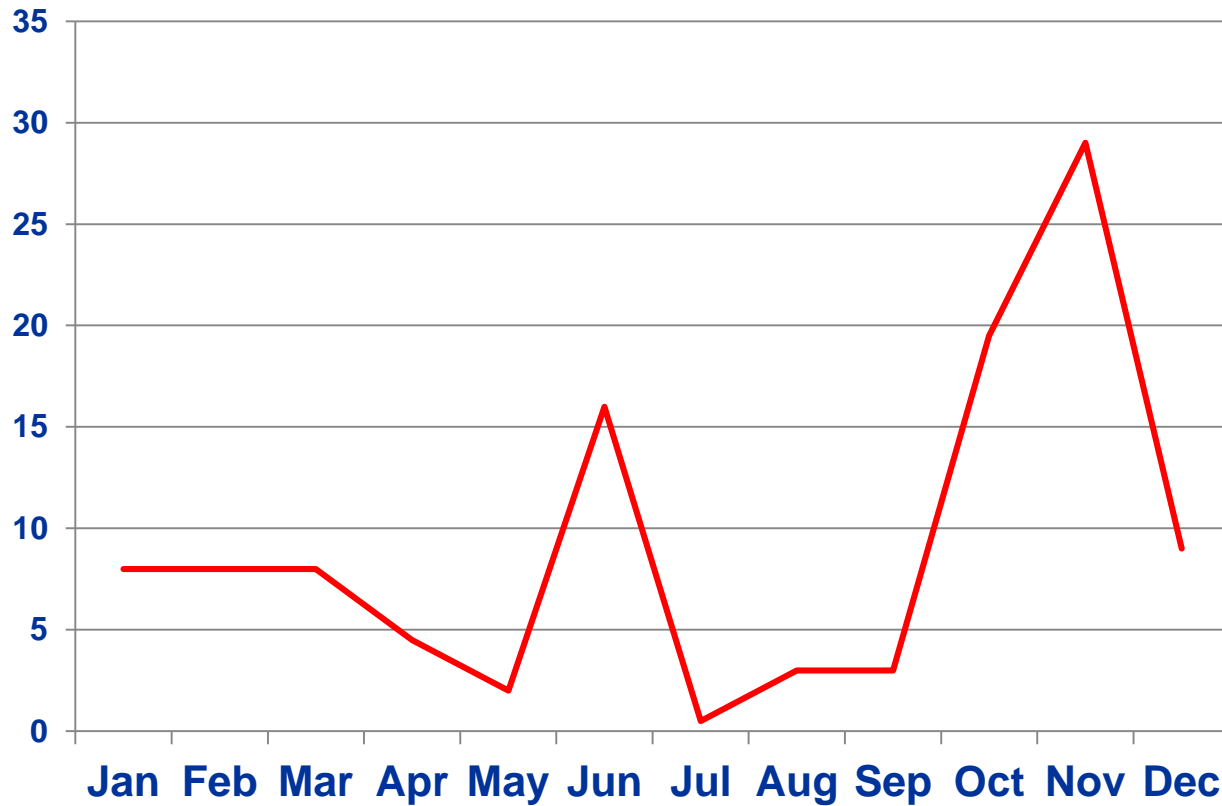
9.2 DVCs per mile per year
Bear: 18 bear deaths (2 yrs)



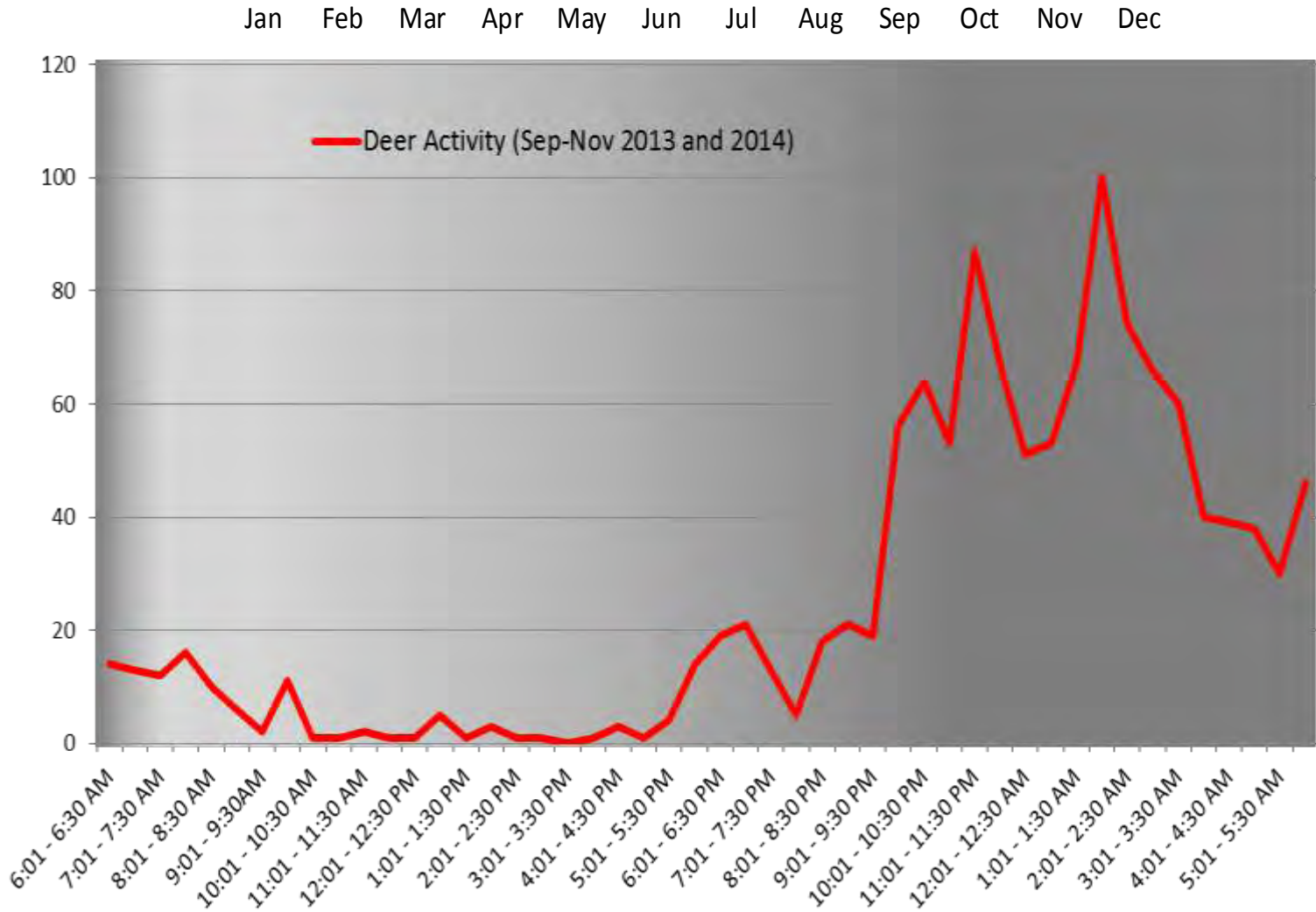
RESULTS

D-202

Deer Carcasses per Month



Deer Activity by Time of Day (Sep to Nov)



PHOTOS

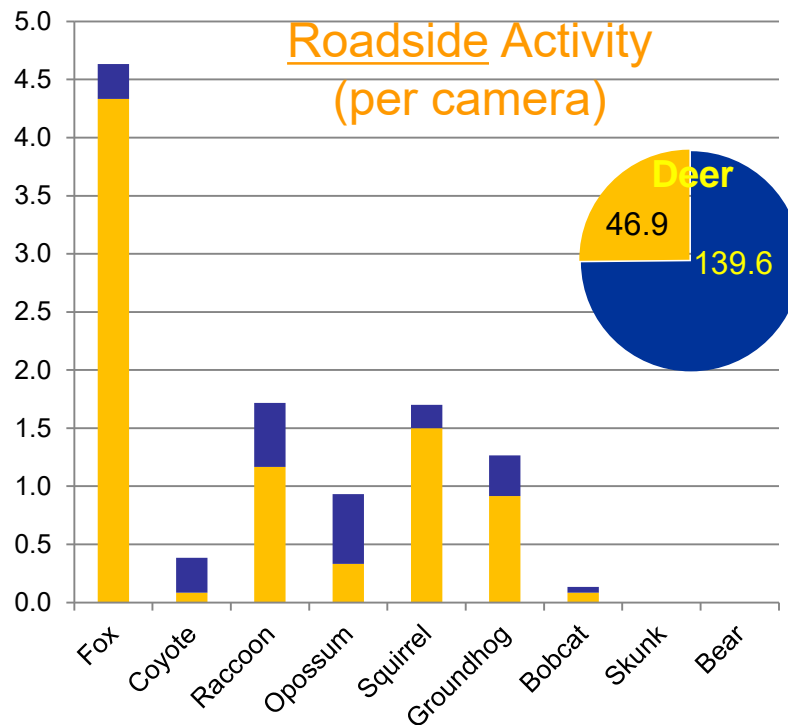
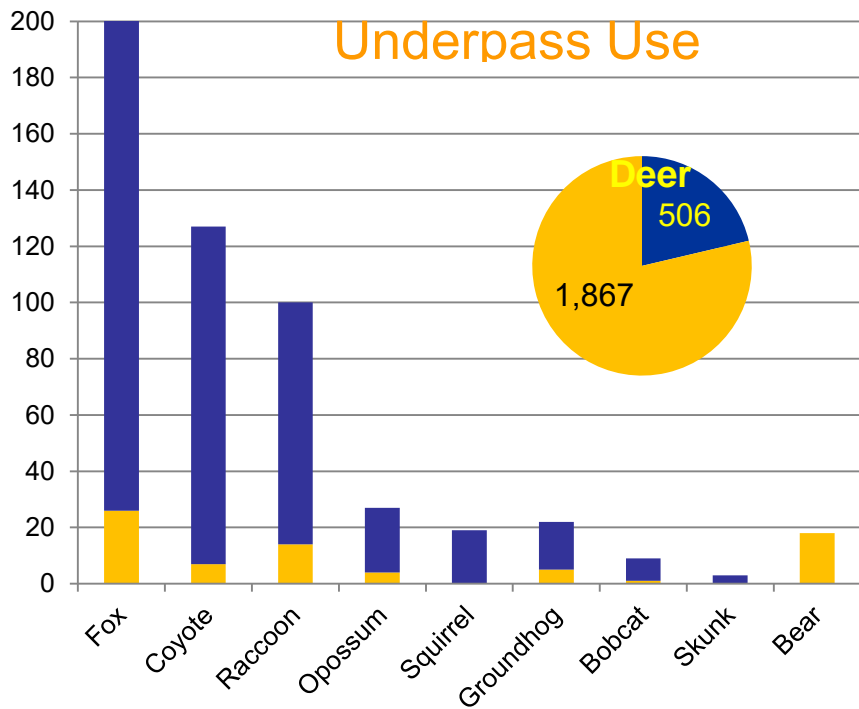
336,000 total

- ~ 1/3 deer
- 35 black bears
- Few thousand photos of other species



D-205 Wildlife Activity

Site 1 vs Site 2 (2 yrs)



Site 1 culvert

Site 2 bridge



Site 1 roadside

Site 2 roadside



D-206



PCB00 PROFESSIONAL
05-03 11:57:04 AM M 3/3



PCB00 PROFESSIONAL



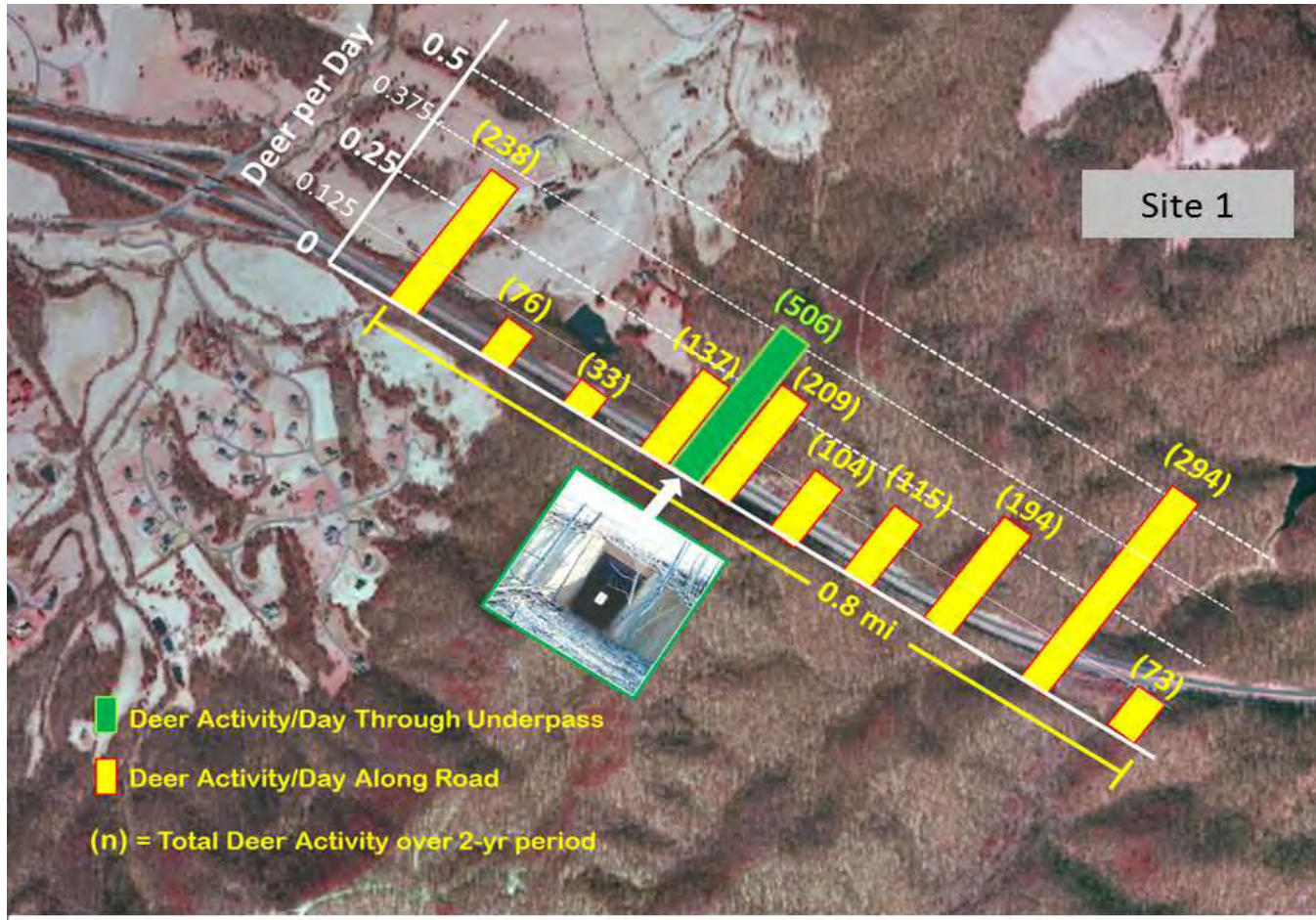
M M 1/3 40°F



PROFESSIONAL



RECONYA

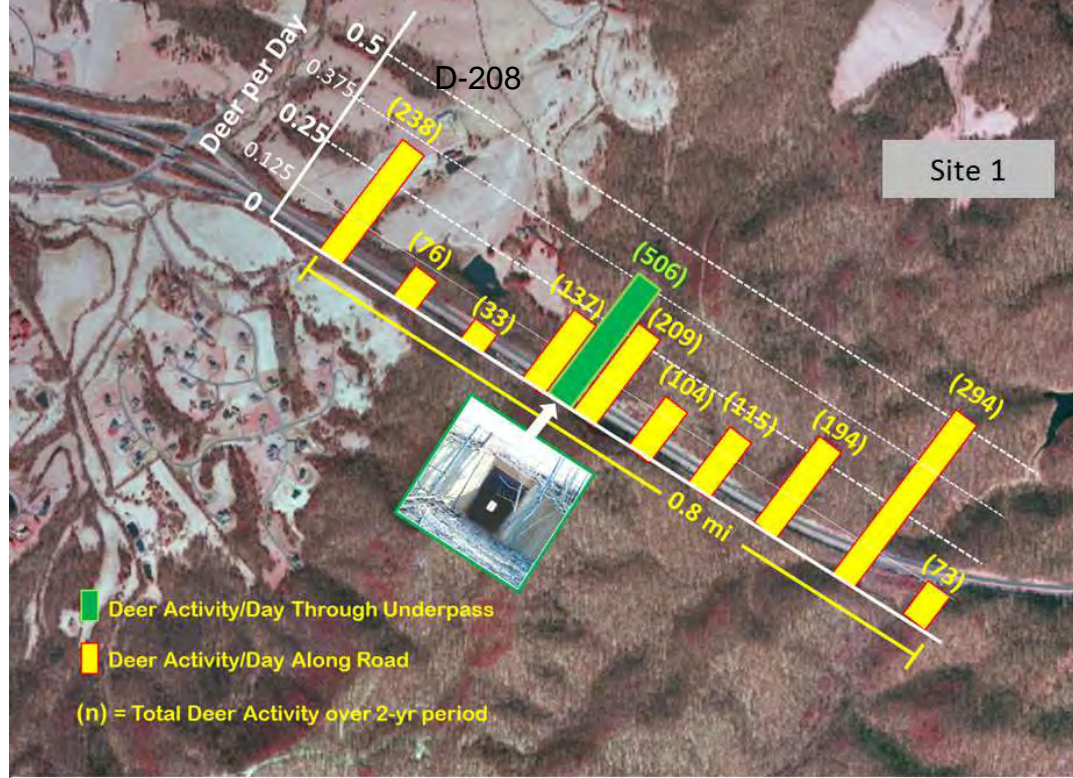


Site 1 Deer Activity: 1,152 per yr

Deer activity along the roadside adjacent to the culvert was 3 times greater than activity through the underpass



Site 1 Deer Activity: 1,115 per yr



Site 1 Deer Activity:
1,115 per yr



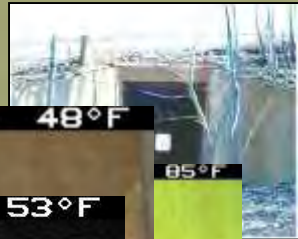
DVCs at each site:
7.5/mi/yr

Site 2 Deer Activity:
1,253 per yr
 Roadside deer activity was 3 times less than activity through the underpass





Site One



2013-03-13 10:59:07 AM M 2/3

48°F

2013-03-16 9:01:49 PM M 1/3

53°F

85°F

54°F

2010

PC800

RECONYX

RECONYX

PC800 PROFESSIONAL

RECONYX

PC800 PROFESSIONAL

RECONYX





Site Two



2013-05-27 11:33:08 AM M 1/3

63°F



PC800 PROFESSIONAL



2013-04-06 11:57:38 PM M 3/3

10 46°F



PC800 PROFESSIONAL

RECONIX

D-212

Roadside

2014-10-18 6:21:29 AM M 3/3

10 57°F



PC800 PROFESSIONAL

RECONIX



PC800 PROFESSIONAL

RECONIX





D-214

Roadside Behavior

2013-04-27 11:50:44 PM M 3/3

2014-11-03 11:56:17 PM M 2/3

48°F

2013-09-27 1:02:35 AM M 2/3



PC800

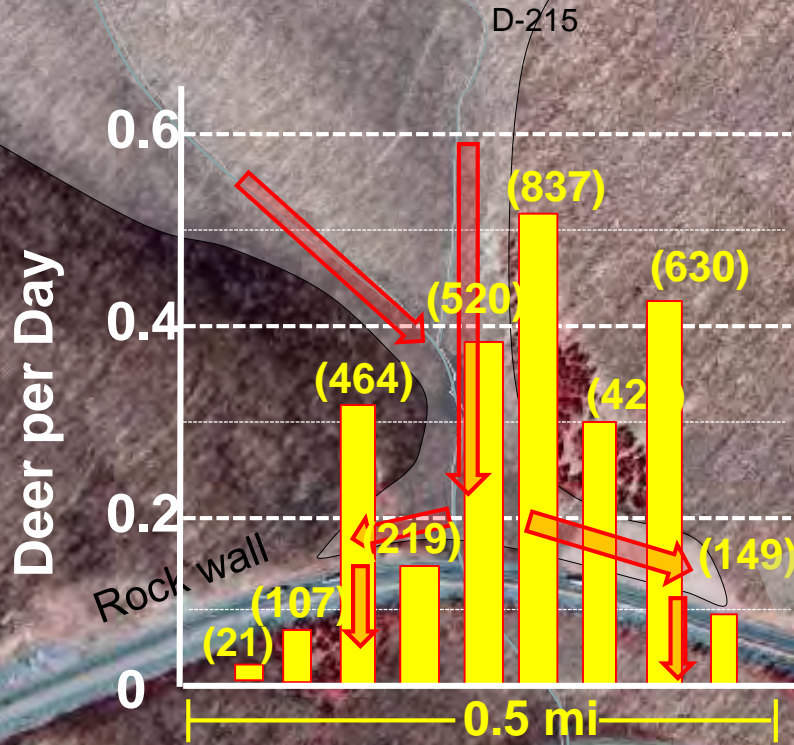
2013-09-18 11:37:34 PM M 1/3

54°F



PC800 PROFESSIONAL

Drainage Corridor Afton Mountain



 Deer Activity Along Road

(n) = Total Deer Activity over 2-yr Period



D-216

2014-05-05 7:03:15 PM M 3/3

54°F



PC800 PROFESSIONAL



Cost Savings



Fencing and escape structures for just one underpass is expected to result in a savings in costs associated with deer-vehicle collisions of **\$501,473** over its service life

Assuming \$6,617 per DVC (Huijser, 2009)

Fencings is cost effective when it prevents **1 DVC** per mile per year



Implementation

Fencing installation at 2 underpasses Feb-June 2017



Implementation

D-219

- deer warning messages on changeable message signs, Oct and Nov 5pm to 9am (Crozet to Afton Mountain)



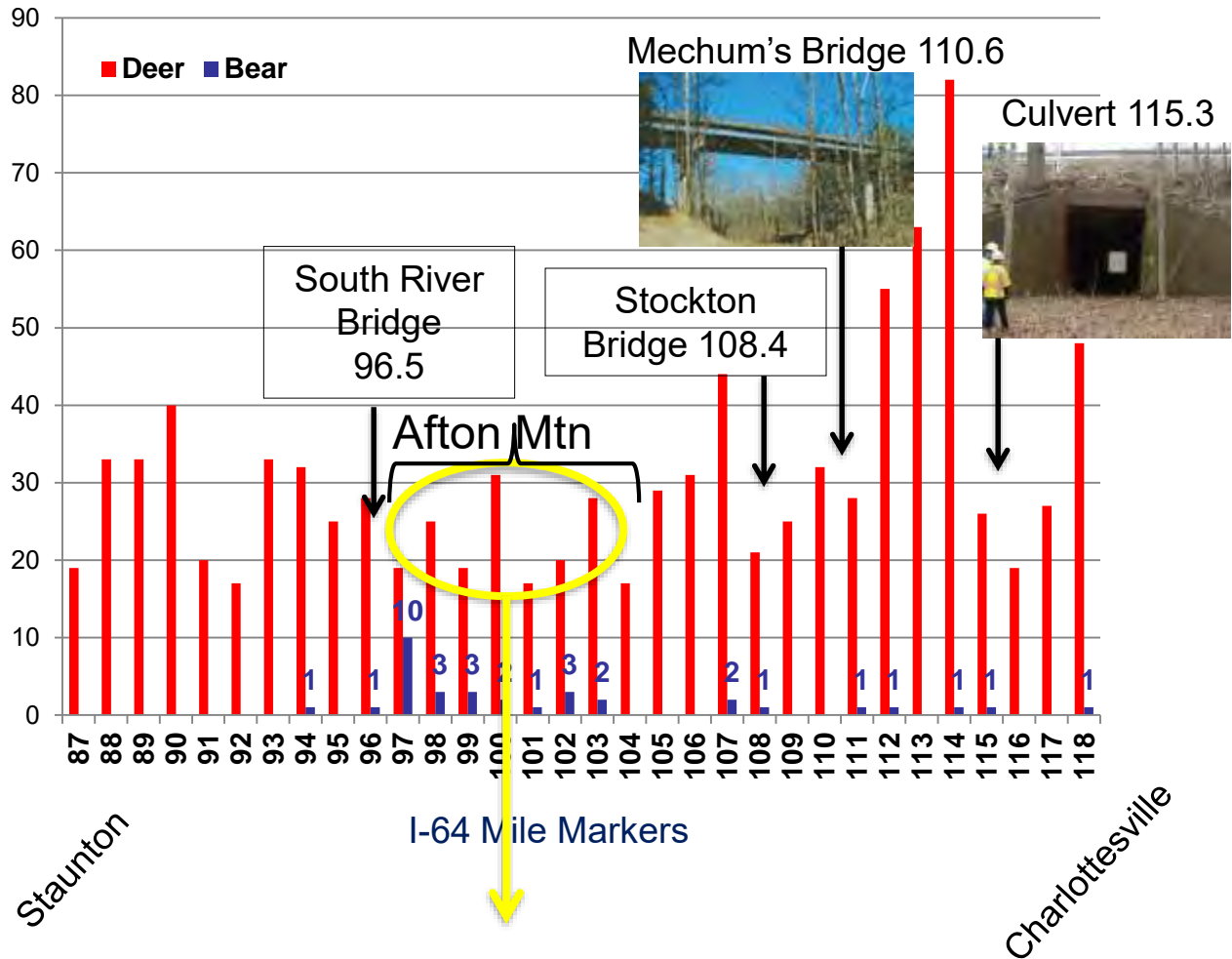
DEER CROSSING
NEXT 15 MILES
DIAL 511 FOR INFO



DEER XING
NEXT 11 MI



Opportunities?



Funding Opportunities for Wildlife Crossings^{D-221}

- Highway Safety Improvement Program
- Transportation Enhancements program (FAST ACT) – funds habitat connectivity projects
- Assoc of Fish and Wildlife Agencies
- VDOT's Research Implementation funds
- Grants
- Foundations
- Private Donations
- Local Taxes



D-222
Thank you

Technical Review Panel

Vernon Hoke (Project Champion)
David Morris
Amy O'Leary
Nelson Lafon (VDGIF)

Camera Pole Installation

Danny Huffer
Gary Wheeler

Field/Research Assistance

Lewis Lloyd
Michael Crawley
Olivia Daniszewski
Lark Washington

Site Visits

Vernon Hoke
David Morris
VJ Kulkarni
Braden Chapmen
Bill Jones
Darrel Hayes
Nelson Lafon
Jim Bowman
David Kocka
Al Bourgeois
Mike Pelton

Implementation of Recommendations

Dean Gustafson
Matthew Shiley
Sharad Uprety
David Pearce
Jimmy White



Report available

<http://vtrc.viriniadot.org> Report 16-R4

Bridget.Donaldson@vdot.virginia.gov

D-223

SHRP2 I-64 Corridor Plan Environmental Considerations

John Chiles
VDOT Culpeper District

Big Picture

- ✓ Environmental Review Process (ERP)
- ✓ National Environmental Policy Act (NEPA)
- ✓ State Environmental Review Process (State)
- ✓ Endangered species
- ✓ Water Quality Permits
 - Cultural Resource (Section 106)
 - Hazardous Materials
 - Noise
 - Air

Why Consider Environmental Factors?

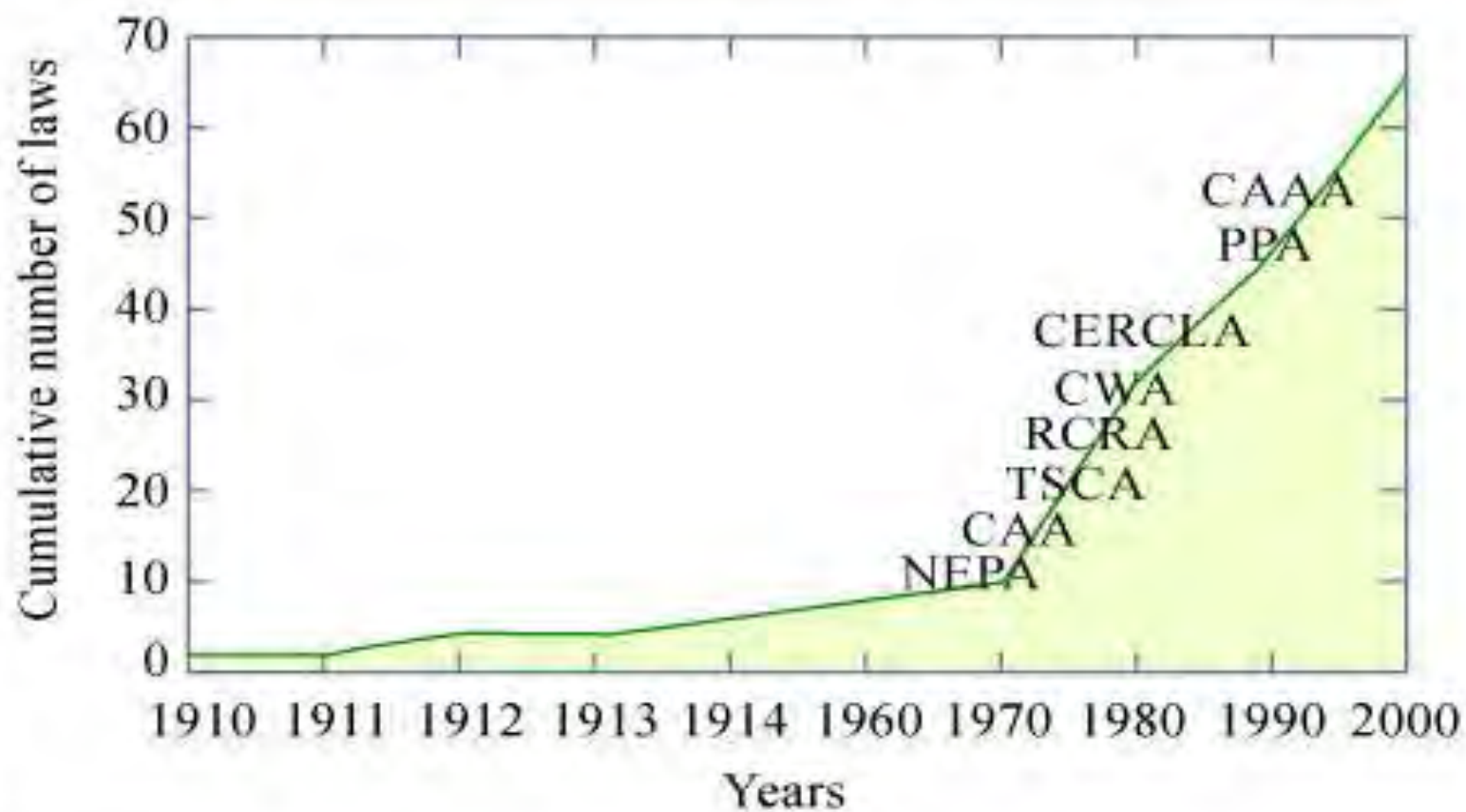
- It's the law
- Civil penalties
- Criminal penalties
- Criminal prosecution
- Basis for lawsuits
- Loss of efficiencies
- Loss of federal funds
- Resource agency relations
- Public relations
- Travel and tourism
- Schedule and budget

Environmental Factors to Avoid/Minimize

D-226

- Wetlands
- Streams
- Endangered species
- Historic properties
- Hazardous materials
- Outdoor easements
- Public parks, recreational areas, wildlife refuges
- Agricultural / Forestal Districts
- Noise
- Environmental Justice

Cumulative Number of Federal Environmental Laws



ERP

- Coordinate with environmental staff to use studies identified in ERP to inform scoping process
- Manage project changes, and communicate project design and schedule changes to environmental staff
- Use input from Environmental staff to adjust budget and schedule (task durations)

NEPA

- Provide timely additional project details to environmental staff
- Avoid/minimize impacts to facilitate lowest level of NEPA document
- Recommend increasing foot print of your study areas/ NEPA Study window to be larger than the project footprint to avoid repeated survey efforts
- Purpose & Need

Reality Check: External influence- FHWA

<i>Document Type</i>	<i>Time (Duration)</i>	<i>Cost</i>	<i>Controlling Entity</i>
BCE	1 Week	<\$500	FHWA
PCE	3 Months	<\$1,000	FHWA
CE	Up to 8 months	\$1,000- \$10,000	FHWA
EA	14 months	\$30,000- \$500,000	FHWA*
EIS	3+ years	3 million+	FHWA*

*FHWA influenced by federal environmental agencies

VDOT's Record: NEPA Documents for FHWA (April 2016-April 2017)

- Blanket Categorical Exclusion – 16.2%
- Programmatic Categorical Exclusion – 75.0%
- Categorical Exclusion – 5.8%
- Environmental Assessment / Environmental Impact Statement – 3%

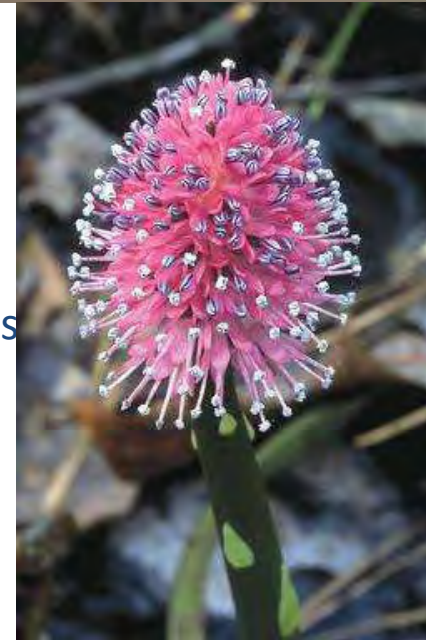
Endangered Species

- Provide project details to environmental lead
- Avoid/minimize impacts to:
 - Facilitate lowest level of effect determination
 - Eliminate or reduce time of year restrictions
- Consider requirement to update endangered species review, ex survey have expirations and must be revisited
- Manage project changes, and communicate project design and schedule changes to environmental staff
- Critical Path, determine presence of species within action areas due to seasonal constraints for surveys. Long Durations for “Biological Opinions” from USFWS on impacts
- Endangered species
 - Time of year restrictions (up to 7 months; construction season)
 - Surveys (up to \$20,000 and 2 years) and relocations

Threatened & Endangered Species

Federal Species

- James Spiny mussel *Pleurobema collina*
- Madison Cave Isopod *Antrolana lira*
- Swamp Pink *Helonias bullata*
- Indiana Bat *Myotis sodalis*
- Northern Long-eared Bat *Myotis septentrionalis*



Endangered Species

State Species

- Peregrine Falcon
- Loggerhead Shrike
- Bald Eagles
- Little Brown Bat
- Tri-colored Bat
- Anadromous Fish



Section 106 NHPA

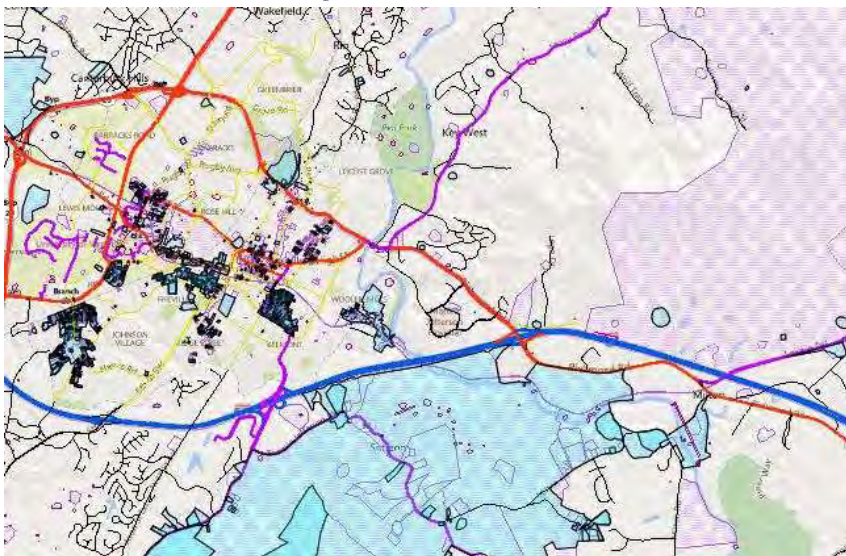
D-235

Historic Resources:

- The terms “historic resources” or “cultural resources” refer to properties such as buildings, bridges, archaeological sites, cemeteries, battlefields, designed landscapes, traditional cultural properties, and districts (a geographically- and thematically-defined group of resources), usually 50 years of age or older, that may have historical significance.
- Ensure that potential harmful effects to historic properties are identified and considered early in project planning so that these effects can be avoided or minimized.
- Consider this to be a critical path and should be started early to avoid future schedule delays, ex. Consulting parties, MOA’s, etc...

Historic Districts

- Jefferson Carter Rural Historic District
- Southern Albemarle Rural Historic District
- Greenwood Afton Historic Districts
- Yancey Mills Historic District



Reality Check: External Influence – FHWA and Others

D-237

<i>Study/Evaluation</i>	<i>Time (Duration)</i>	<i>Cost</i>	<i>Controlling Entity</i>
Section 106	6 months-1 year	\$50,000- \$500,000	FHWA, DHR*, ACHP*
Agricultural/ Forestal District	5 months	\$1,000 - \$5,000	Local Government
4(f)	6-8 months	\$50,000+	FHWA/DOI*

*DHR - Department of Historic Resources; *ACHP - President's Advisory Council on Historic Preservation;

*DOI - Department of Interior

Water Quality Permits

- Identify potential impacts associated with culvert replacements/extensions, bridges, roadway widening, etc...
- Requires delineation of WOUS to identify Streams & Wetlands
- Utilize VDOT IACM (Inter Agency Coordination Meeting) process

Permit Costs

- Processing fees
- Public notice
- Mitigation
 - Design, ROW, construction, monitoring
 - Wetlands: \$100,000+/acre
 - Streams: \$650+/linear foot
- Erosion and sedimentation control
 - Design, construction, monitoring
- Monitoring and reporting (including post-construction)

Reality Check: External Influences – Corps of Engineers

D-240

<i>Permit Type</i>	<i>Time</i>	<i>Compensatory Mitigation Required</i>	<i>Public Notice</i>	<i>Agency Pre-Const. Review</i>
No Permit / Non-Reporting Permit	15-30 days	No	No	No
Nationwide	60-75 days	Yes	No	Yes
Regional	60-120+ days	Yes	No	Yes
State Program General Permit	60-75 days	Yes	No	Yes
Standard	180-360+ days	Yes	Yes	Yes

D-241

Reality Check: External Influences – Department of Environmental Quality (DEQ)

<i>Permit Type</i>	<i>Time</i>	<i>Compensatory Mitigation Required</i>	<i>Public Notice</i>	<i>Agency Pre-const. Review</i>	<i>State Water Control Board Hearing</i>
No permit	15-30	No	No	No	No
VWPP* General	45 days	Yes	No	Yes	No
VWPP*	180 - 220 days	Yes	Yes	Yes	Yes

*VWPP-Virginia Water Protection Permit

Reality Check: External Influence – Virginia Marine Resources Commission (VMRC)

<i>Permit Type</i>	<i>Time</i>	<i>Compensatory Mitigation Required</i>	<i>Public Notice</i>	<i>Agency Pre-Const. Review</i>	<i>VMRC Hearing</i>
VA General Permit 1 (VGP-1)	45-75 days	Yes	No	Yes	No
Standard	180+ days	Yes	Yes	Yes	Yes

Hazardous Materials

- UST
- AST
- Contaminated Soil & Groundwater
- Solid Waste
- Evaluated potential to impact previously reported release sites and new sites.

Noise

- A highway is being built on a new location
- An existing highway is being redesigned with a significant change in its alignment
- The number of through traffic lanes on an existing highway is being increased
- The addition of a new or substantial alteration of a weigh station, rest stop, ride-share lot or toll plaza

VOF Easements

- An open-space easement is an interest in property voluntarily offered by a landowner that limits the property's uses in order to protect its conservation and open-space values
- Numerous VOF Easements along I-64 corridor in Albemarle County



Take Control

- Avoiding and minimizing impacts will reduce FHWA and regulatory agency control of your schedule and budget

How do you manage your destiny?

- Understand your environmental role on Project Team
- Involve environmental staff
- Manage project scope
- **Identify environmental issues early**
- Avoid/minimize impacts:
 - Project footprint
 - Shift alignment
 - Modify typical section
 - Retaining walls
 - Pier spacing
 - Countersink pipes
 - Eliminate channelization and stream relocation; stream impacts
 - Use bridges, bottomless arches
 - Construction BMPs



SHRP2 I-64 Corridor Study Working Group Meeting #5

July 26, 2017

1:00 PM to 3:00PM

Location: Thomas Jefferson PDC

401 East Water Street

Agenda

1. Introductions (5 minutes)

- Project team staff will lead the working group through brief introductions.

2. Project Update and PlanWorks (15 minutes)

- Summary of the May Working Group Meeting
 - i. Review of PlanWorks COR-5
- MPO Memorandum of Agreement update and September joint MPO Meeting

3. Work Session: (90 minutes)

- *Freight Planning – Erik Johnson, VDOT Freight Planning Office*
- *Freight Movement – Kevin Reilly - Rio Logistics (Waynesboro)*

BREAK (5 minutes)

- *Rail Freight - Brian Freeman, Buckingham Branch Railroad*

4. Action Items & Next Steps

- Draft Corridor plan recommendations

5. Upcoming Meeting Topic: Final Meeting, Lessons Learned, problem areas and next steps

6. Next Meeting Date: Early September – Date and Location TBD

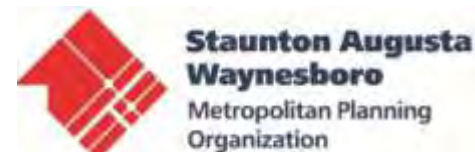
D-249

SHRP2 Interstate 64 Corridor Plan

Shenandoah Piedmont area Collaborative
Effort (SPaCE)

Working Group Meeting

July 26, 2017



Project Study Area



Plan Works

- PlanWorks: Better planning. Better projects. (C01)
 - Web-based decision support tool
 - Supports and improves collaborative decision making
 - Built around key decision points in the project, LRTP, & planning process
 - Provides a flexible roadmap for project planning and stakeholder involvement








Plan Works

Corridor Planning Toolkit

- The Decision Guide streamlines the transportation process by systematically building in collaboration. It was developed using examples of successful practice and input from all partners in transportation decision making.
- The Decision Guide was developed from 23 in-depth, detailed case studies (Including the CA-MPO 2040 LRTP TCAPP Process)

Corridor Planning

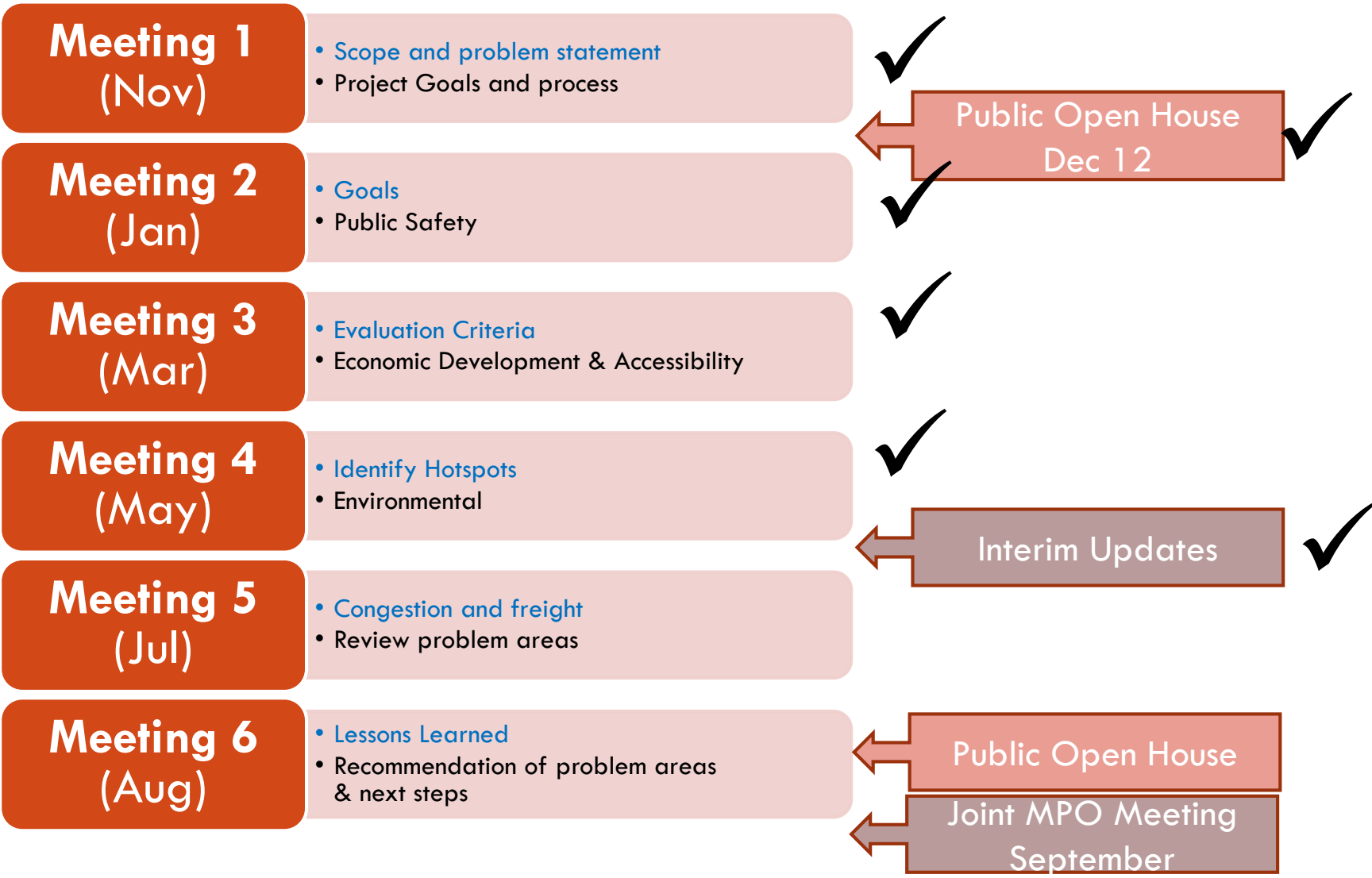
COR-1 <u>Approve Scope of Corridor Planning Process</u> 	COR-2 <u>Approve Problem Statements and Opportunities</u> 	COR-3 <u>Approve Goals for the Corridor</u> 	COR-4 <u>Reach Consensus on Scope of Environmental Review and Analysis</u> 	COR-5 <u>Approve Evaluation Criteria, Methods and Measures</u> 	COR-6 <u>Approve Range of Solution Sets</u>	COR-7 <u>Adopt Preferred Solution Set</u>	COR-8 <u>Approve Evaluation Criteria, Methods and Measures for Prioritization of Projects</u>	COR-9 <u>Adopt Priorities for Implementation</u>
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Project Scope

Scope

- ❑ Open a dialog with interests in the I-64 Corridor
- ❑ Build an understanding of the issues through collaborative discussions and by engaging the experts
- ❑ Use transportation performance measures to identify deficiencies in the corridor
- ❑ Identify ways to improve collaboration and communication on issues of governance, maintenance and project identification
- ❑ Document lessons learned and produce a final document that outlines deficiencies and concept level solutions

Working Group Meetings



COR-1

COR-1 Outcomes

COR-1 Scope of Corridor Planning Process

COR-1: Approve Scope and Process

First steps: coordinating partners and establishing formal lines of communications between groups that communicate infrequently. Evaluation of decision points and creating collaborative decision-making across multiple disciplines and tiers of government will be included.

Deliverables:

Draft Scope to guide planning process; Aggregate data repository.

Outcomes:

- The geographical scope
- Technical Scope
- Web Data Repository <http://campo.tjpd.org/i64-corridor/>

COR-1



COR-1

COR-1 Outcomes

- The Technical scope is based on meeting the regional need of improving the safe efficient movement of **goods** and **people** through the study corridor. Due to the corridor being super-regional in nature, the technical aspects of the corridor study focus heavily on improving inter-governmental and inter-agency communication, coordination, and facility management.
- Data Repository A project specific webpage has been set up within the Charlottesville Albemarle MPO domain. <http://campo.tjpd.org/i64-corridor/>. The site includes information about the project, an interactive map, and a growing inventory of corridor related studies GIS and reports.

COR-2

COR-2

COR-2

Problem
statement and
opportunities

COR-2: Approve Problem Statements/Opportunities

SPaCE will engage facilitated collaborative meetings, focused stakeholder groups, public input sessions and multi-media engagement to identify a common understanding of the issues and seek partner and stakeholder identification of problems and opportunities.

Deliverables:

Work towards agreement among stakeholders on the deficiencies and potential opportunities. Staff, collaborating with the Working Group have identified the following deficiencies:

COR-2 Deficiencies

COR-2 Deficiencies List

- **Safety**
 - Crashes
 - Speed
- **Peak hour congestion**
 - Congestion at key exits
 - Traffic at Afton caused by slow moving heavy vehicles
 - Commuter demand
 - Through traffic demand
- **State of good repair**
 - Roadway pavement conditions
 - Bridges
- **Accessibility**
 - Transit
 - Carpooling
- **Land Use**
 - Housing affordability
 - Jobs and housing mismatch
 - Development patterns

COR-3

COR-3

COR-3

Approve goals
for the corridor
project

COR-3: Goals

Process: elicit stakeholder perspective and partner approval on the comprehensive set of transportation, community and environmental goals. Focus will be regional outcomes of reducing congestion, improving safety and enhancing multi-modal options in the corridor supported by access to comprehensive data.

Outcome: Develop a list set of goals guiding the selection of a set of solutions addressing opportunities and deficiencies.

Deliverables:

Draft corridor goals

COR-3 Corridor Goals

COR-3 Goals

1. **Improve** the overall function of the corridor by increasing the efficiency and safety of which goods and people move through the corridor.
2. **Enhance** communication among MPOs, Local Governments, VDOT and DRPT on planning issues in the corridor.
3. **Minimize** the impact that any projects have on natural resources and the environment.

COR-4 Environmental

COR-4
Environmental

COR-4

Reach consensus
on environmental
review scope

- Vehicle wildlife conflicts
 - ▣ Deer crashes (~51% of crashes)
- Sensitive endangered species habitats
 - ▣ Afton Area
 - ▣ Stream crossings
- Cultural and historic considerations
 - ▣ Conservation easements
 - ▣ Historic districts & archeological sites
- Managed Lands
 - ▣ Adjacency to NPS and USFW lands

COR-5 Evaluation Criteria

COR-4
Evaluation
Criteria

COR-5
Approve
Evaluation
Criteria,
Methods and
Measures

- **Congestion**
 - ▣ AM, PM Congestion at key exits
 - ▣ Travel options (Transit, TDM)
- **Safety**
 - ▣ Crash hotspots and crash rates
 - ▣ Stream crossings
- **Operations and Maintenance**
 - ▣ Bridge sufficiency rating
 - ▣ Pavement conditions
- **Communication**
 - ▣ Joint Meetings
 - ▣ Project applications supported
 - ▣ MOU

Status Update

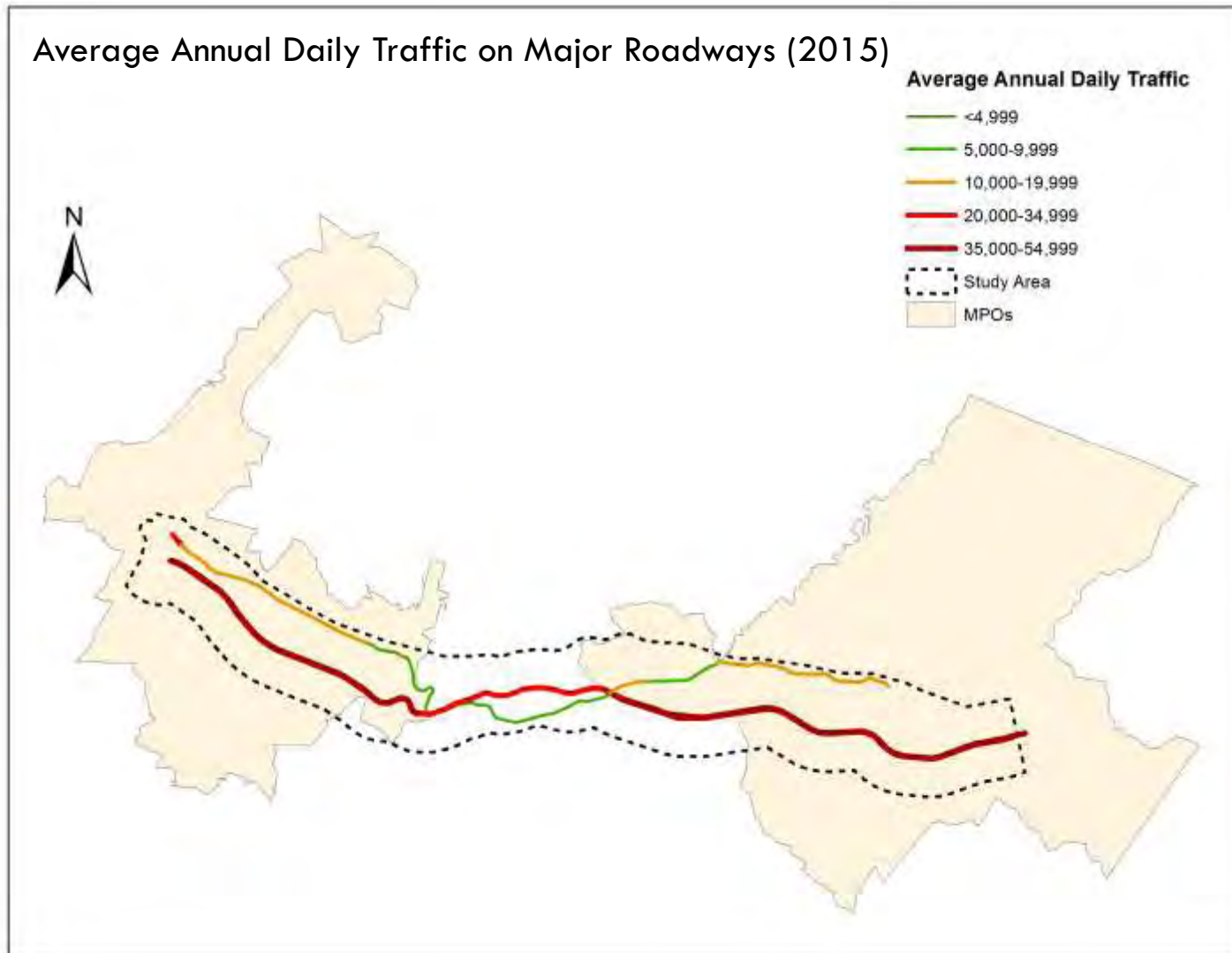
Status Update

- Project Webpage – **Completed**
- Draft MOU – **September Joint MPO Meeting**
- Database of Plans and Studies – **Interactive map online**
- Draft Corridor Study Report – **Drafting report**
- Joint MPO Meetings – **Next Meeting September**

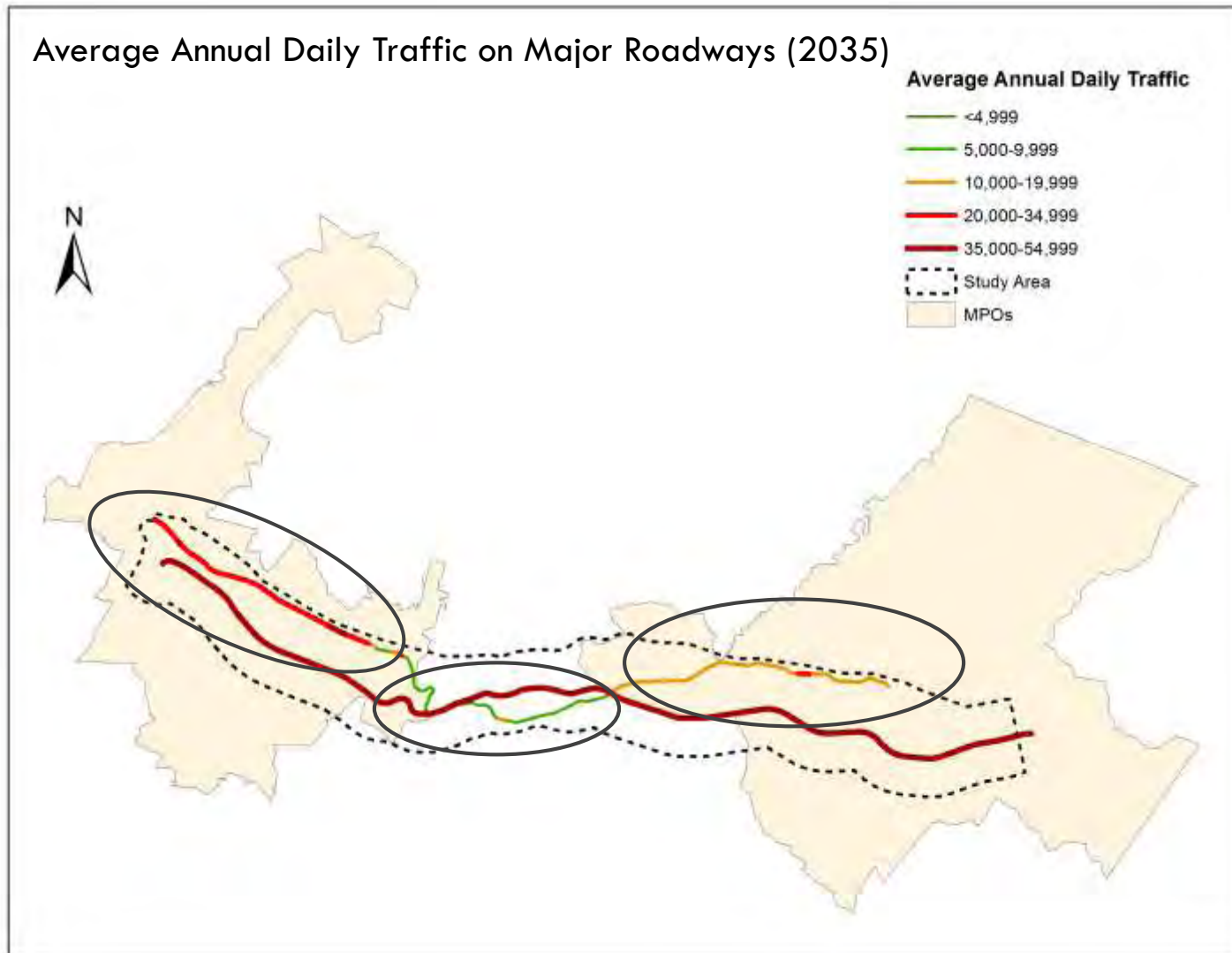
Congestion Analysis

- Average Annual Daily Traffic (Current and Forecasted)
- Volume to Capacity Ratio (Current and Forecasted)

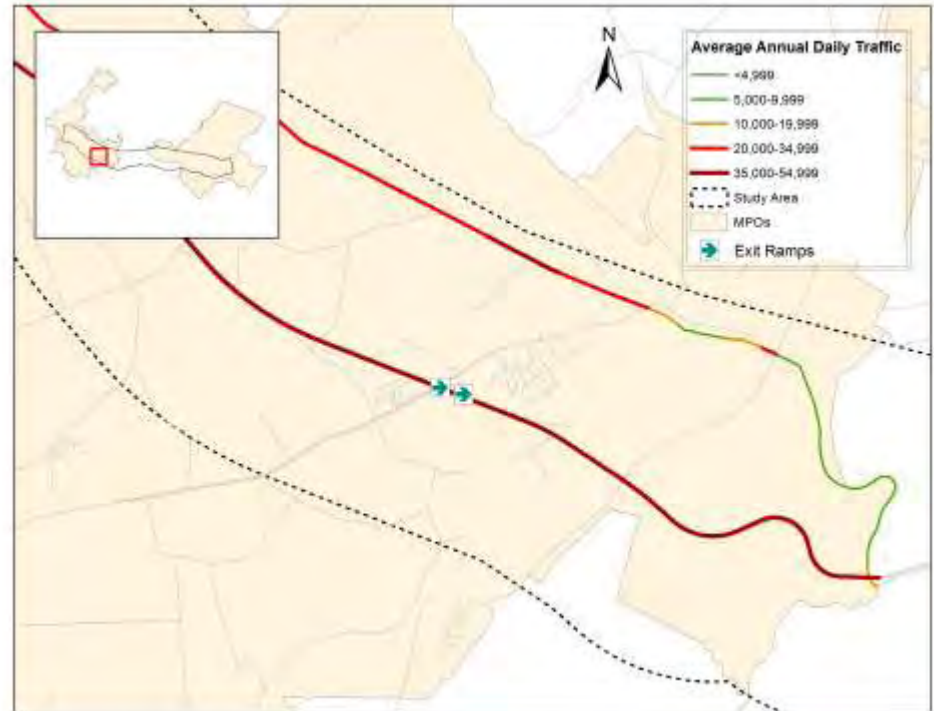
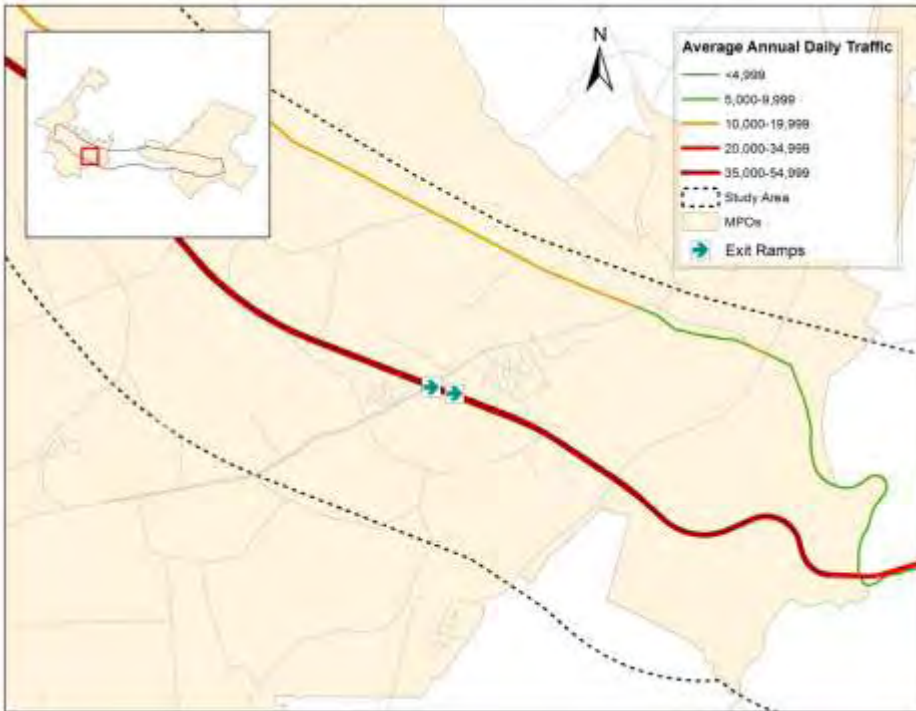
Average Annual Daily Traffic (AADT)



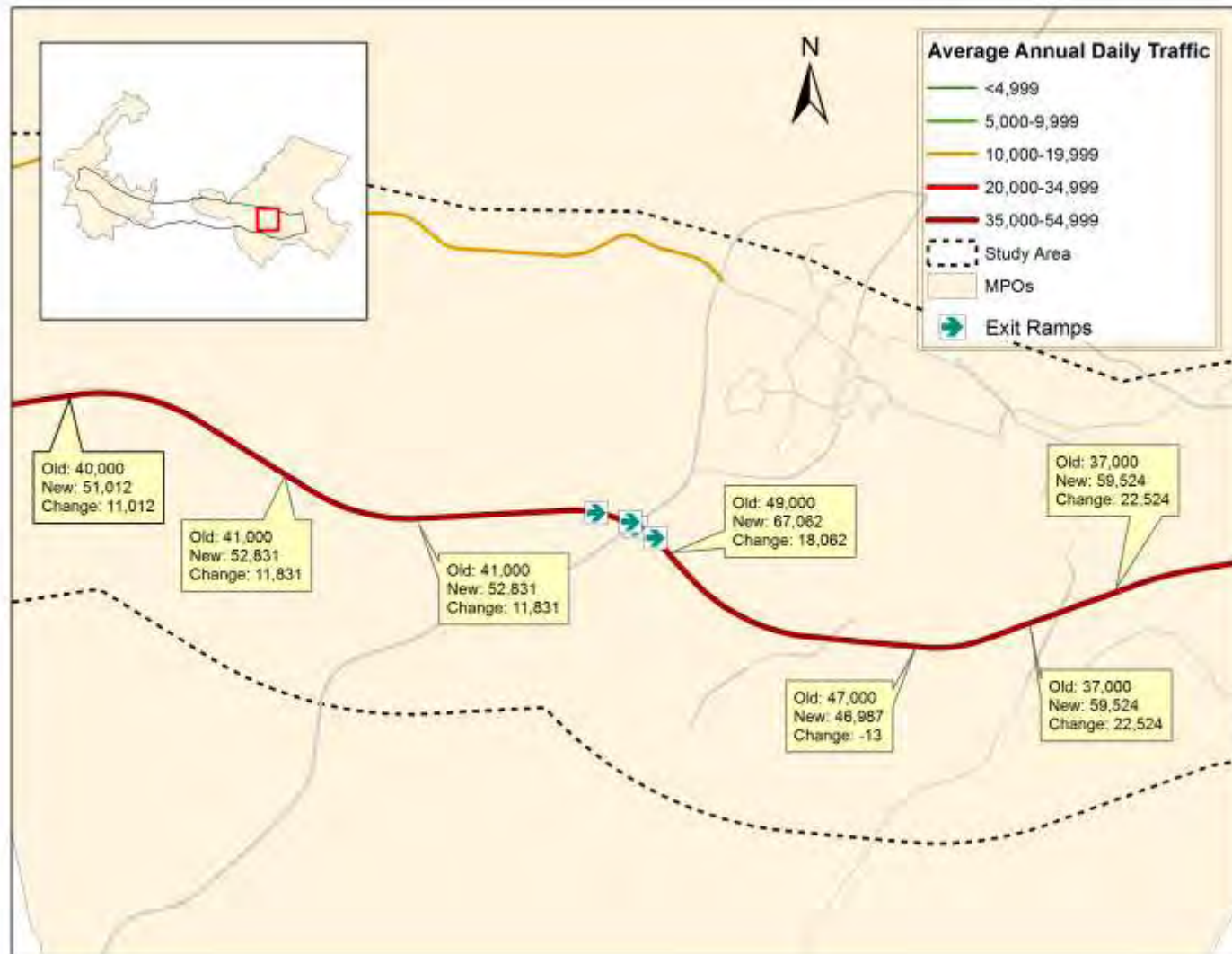
Average Annual Daily Traffic (AADT)



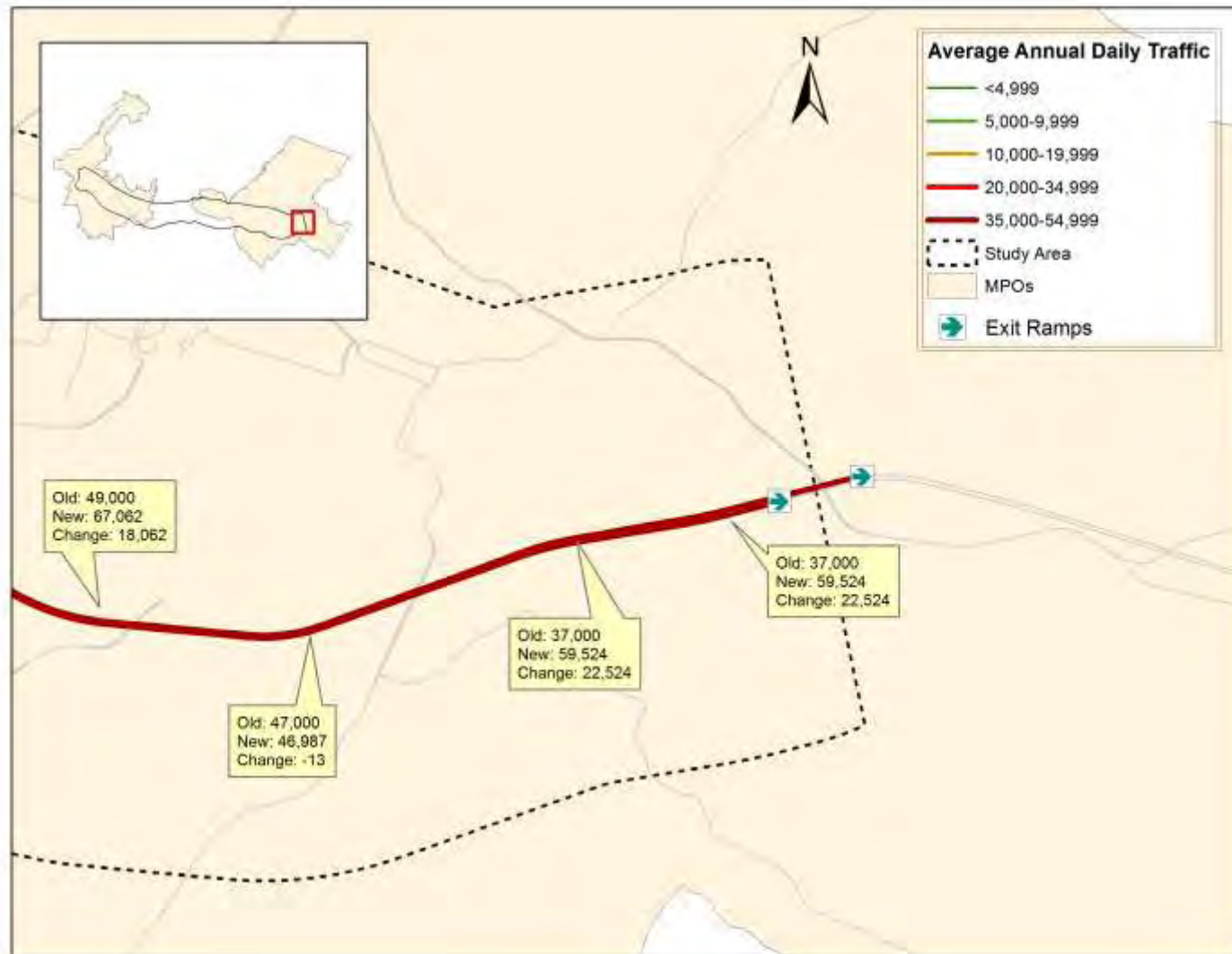
Change in AADT- Exit 94



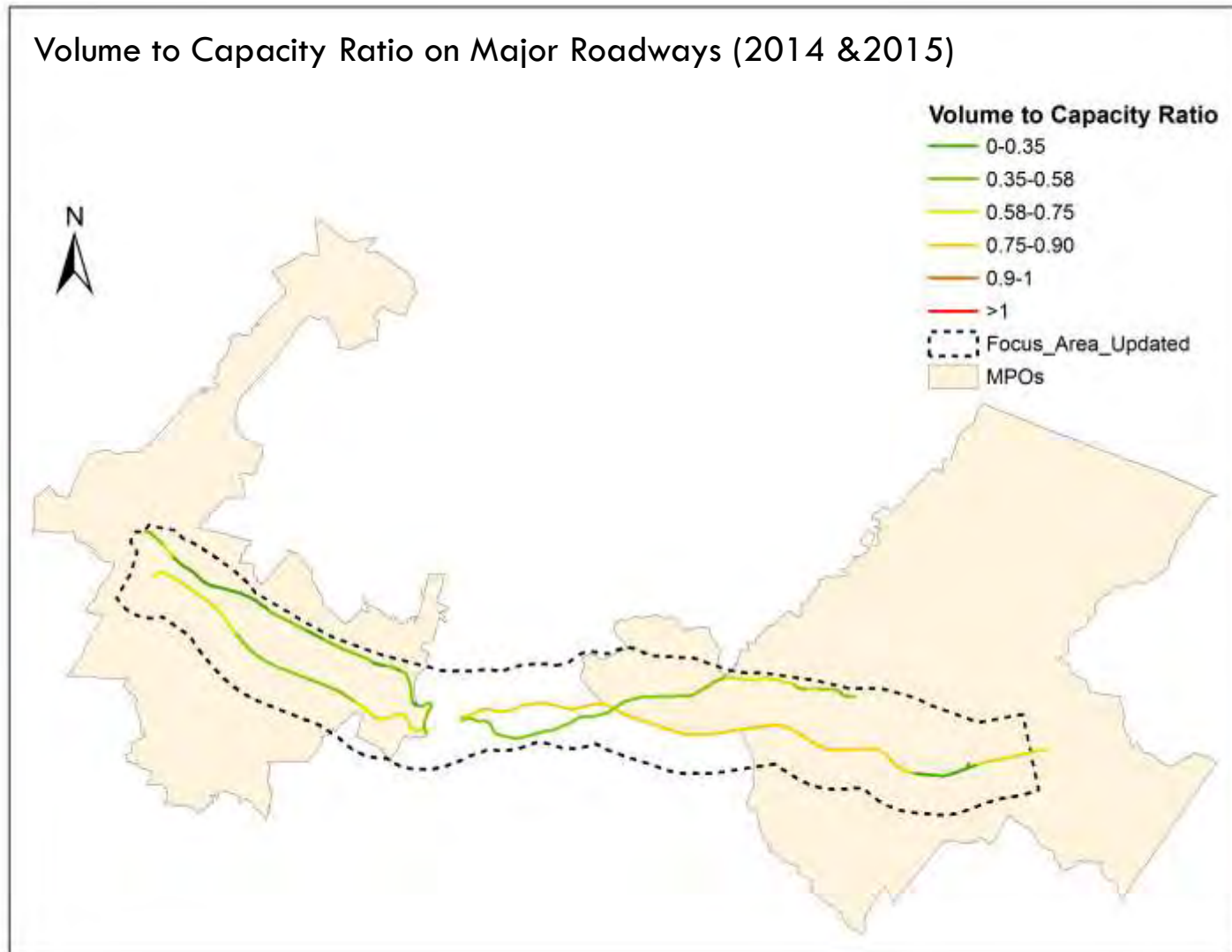
Change in AADT- - Exit 118



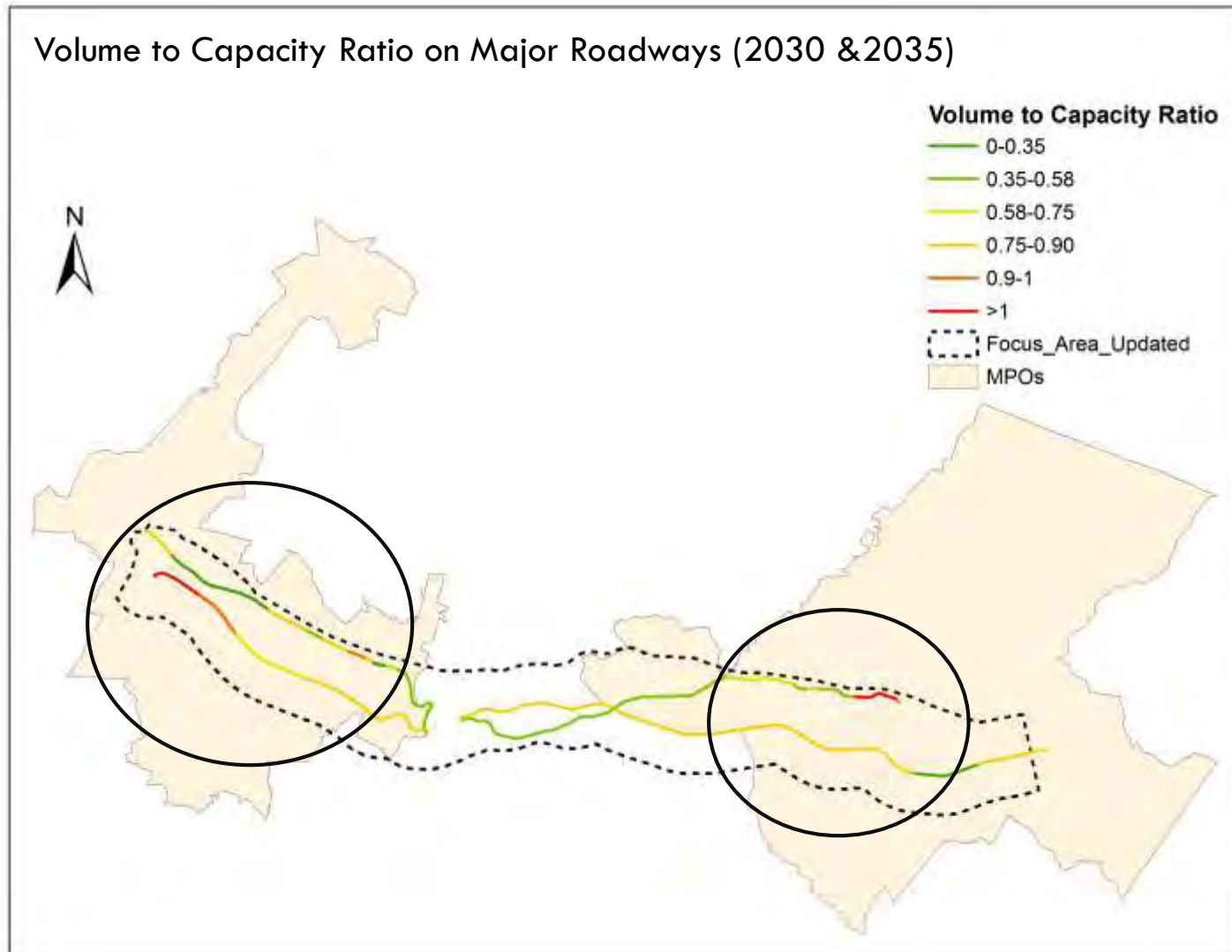
Change in AADT- - Exit 124



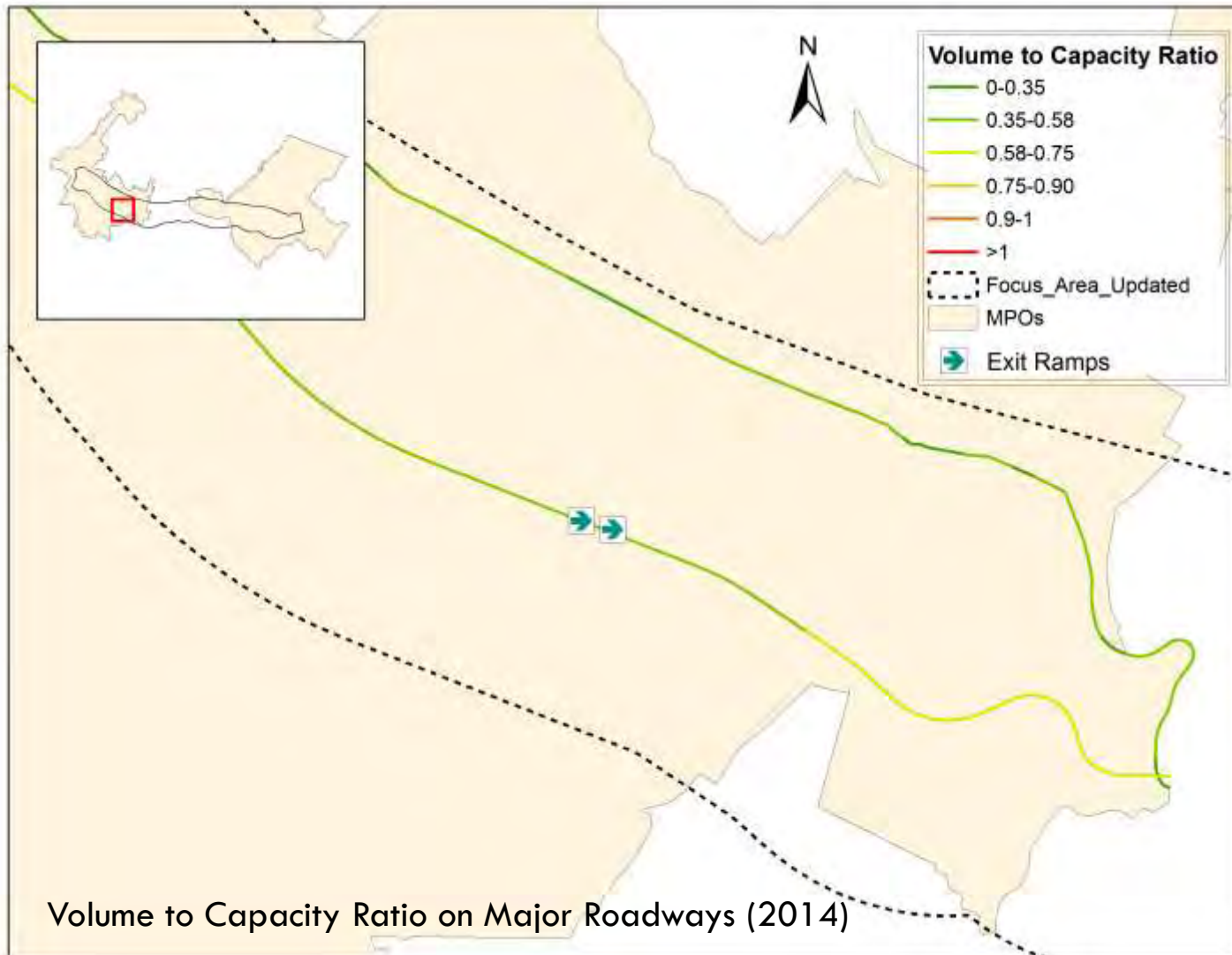
Volume to Capacity Ratio (V to C Ratio)



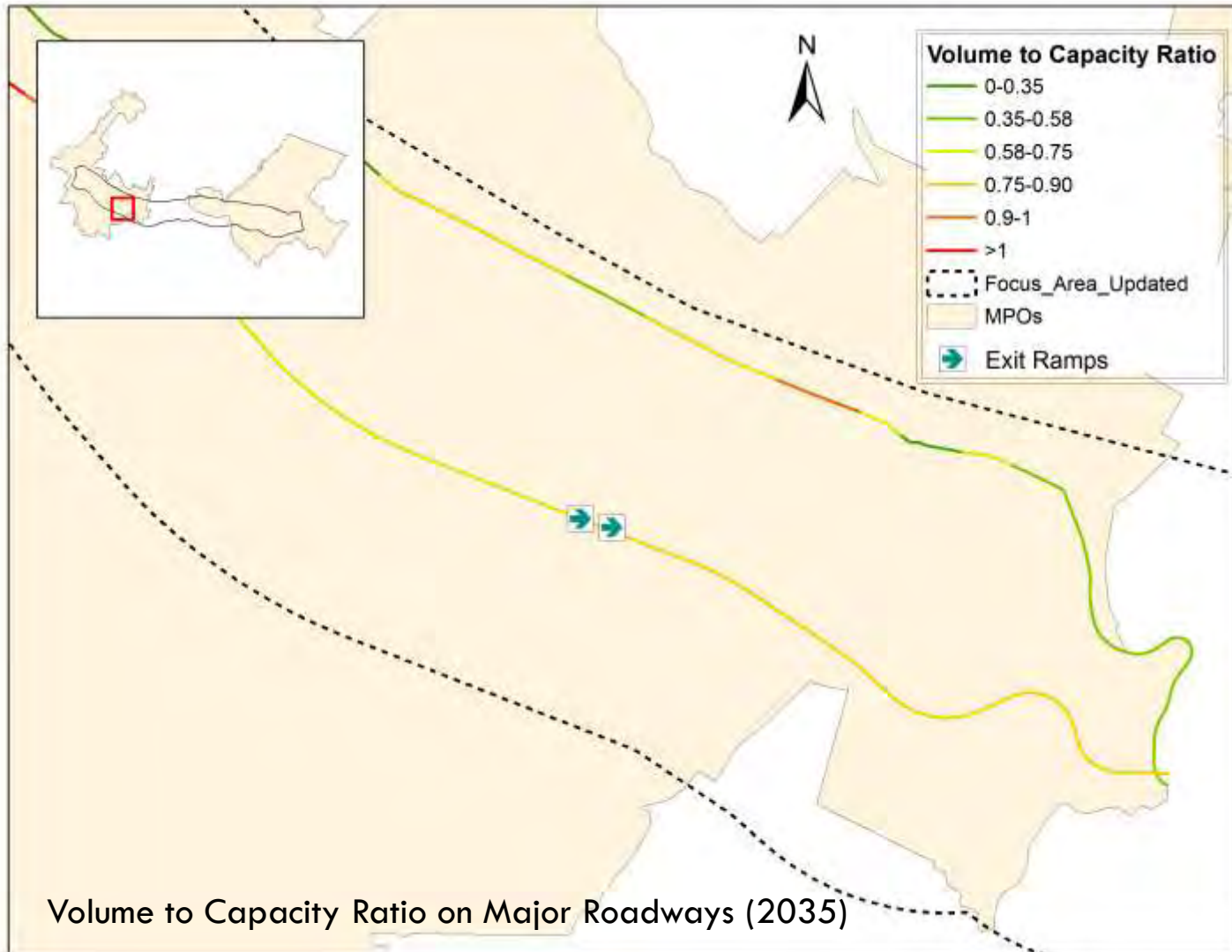
Volume to Capacity Ratio (V to C Ratio)



V to C Ratio – Exit 94

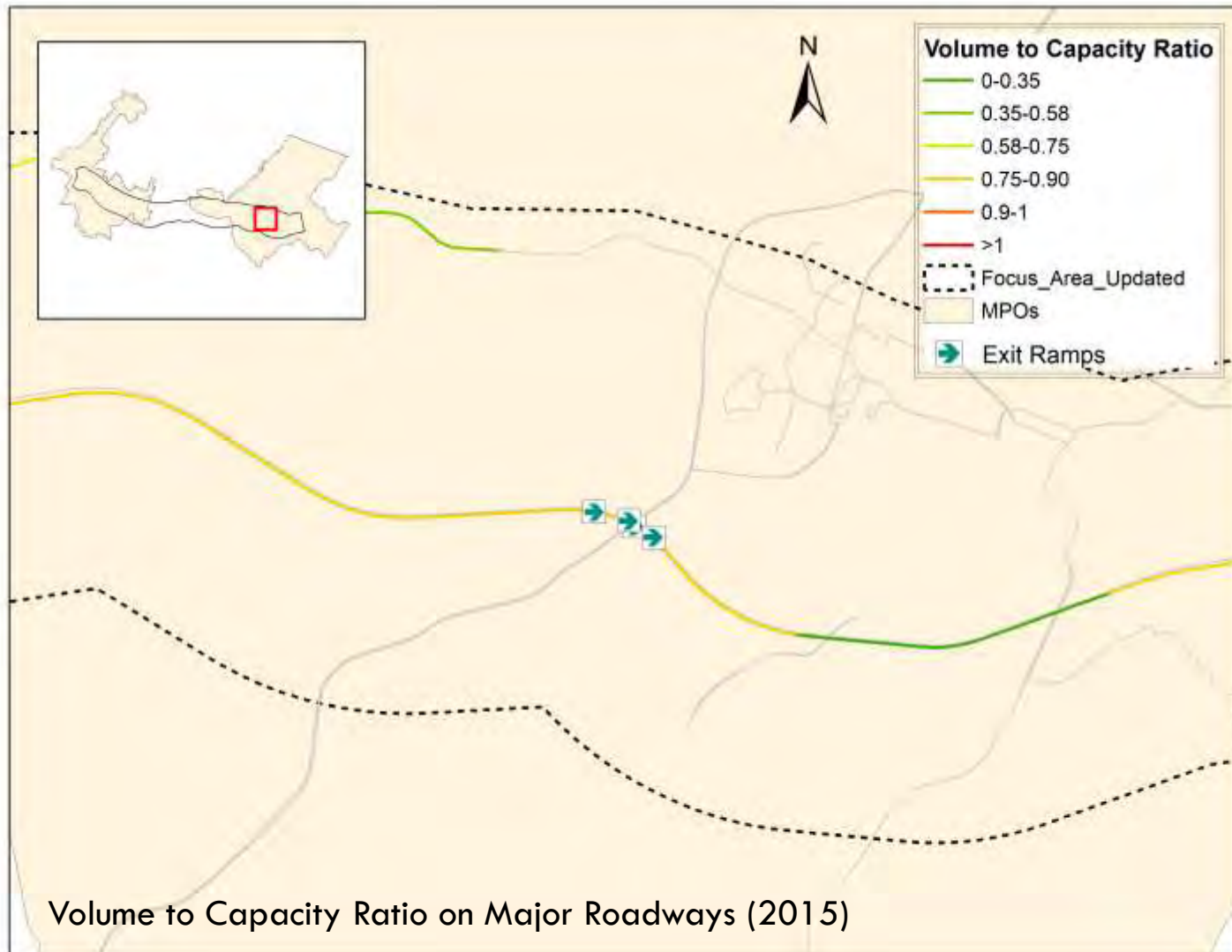


V to C Ratio – Exit 94

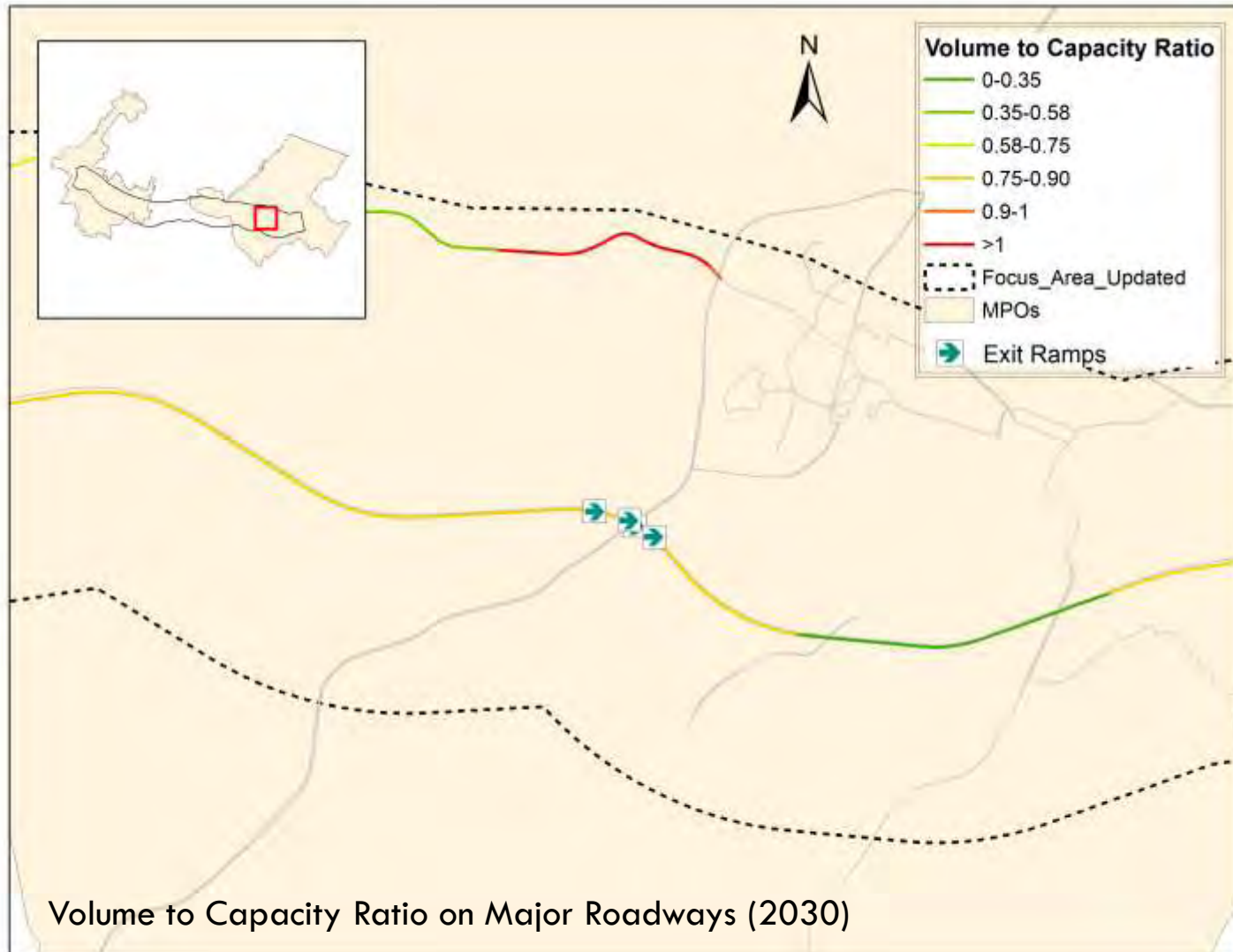


Volume to Capacity Ratio on Major Roadways (2035)

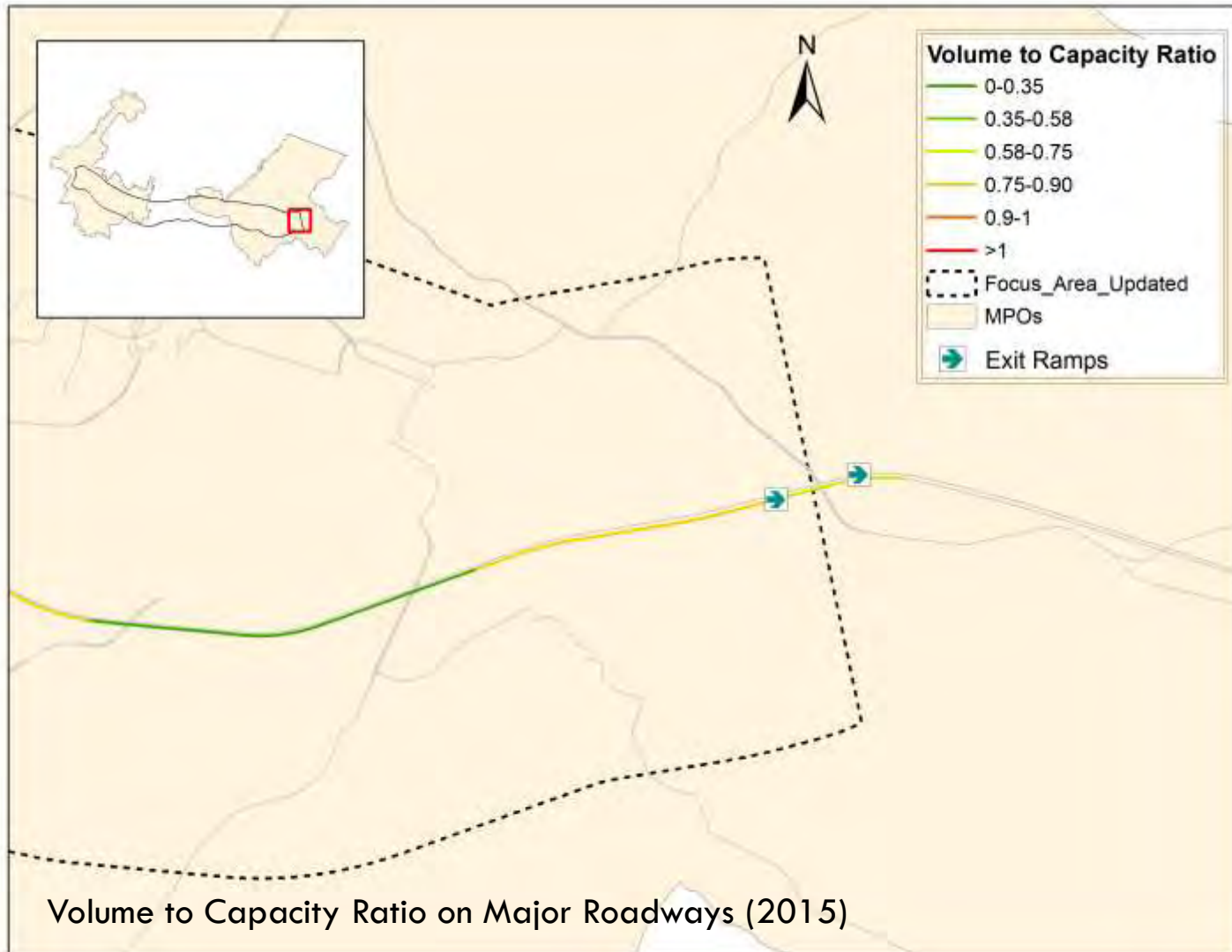
V to C Ratio - Exit 118



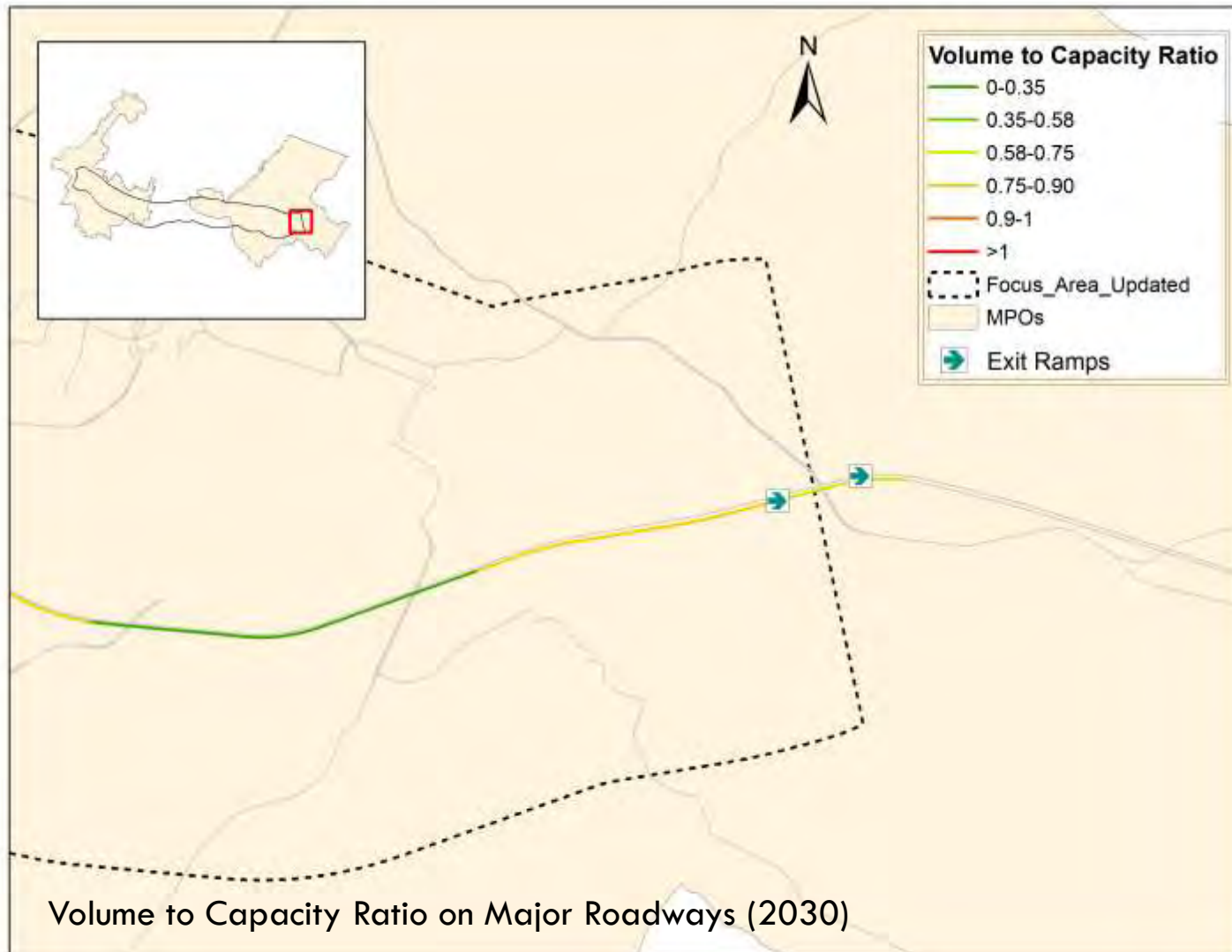
V to C Ratio - Exit 118



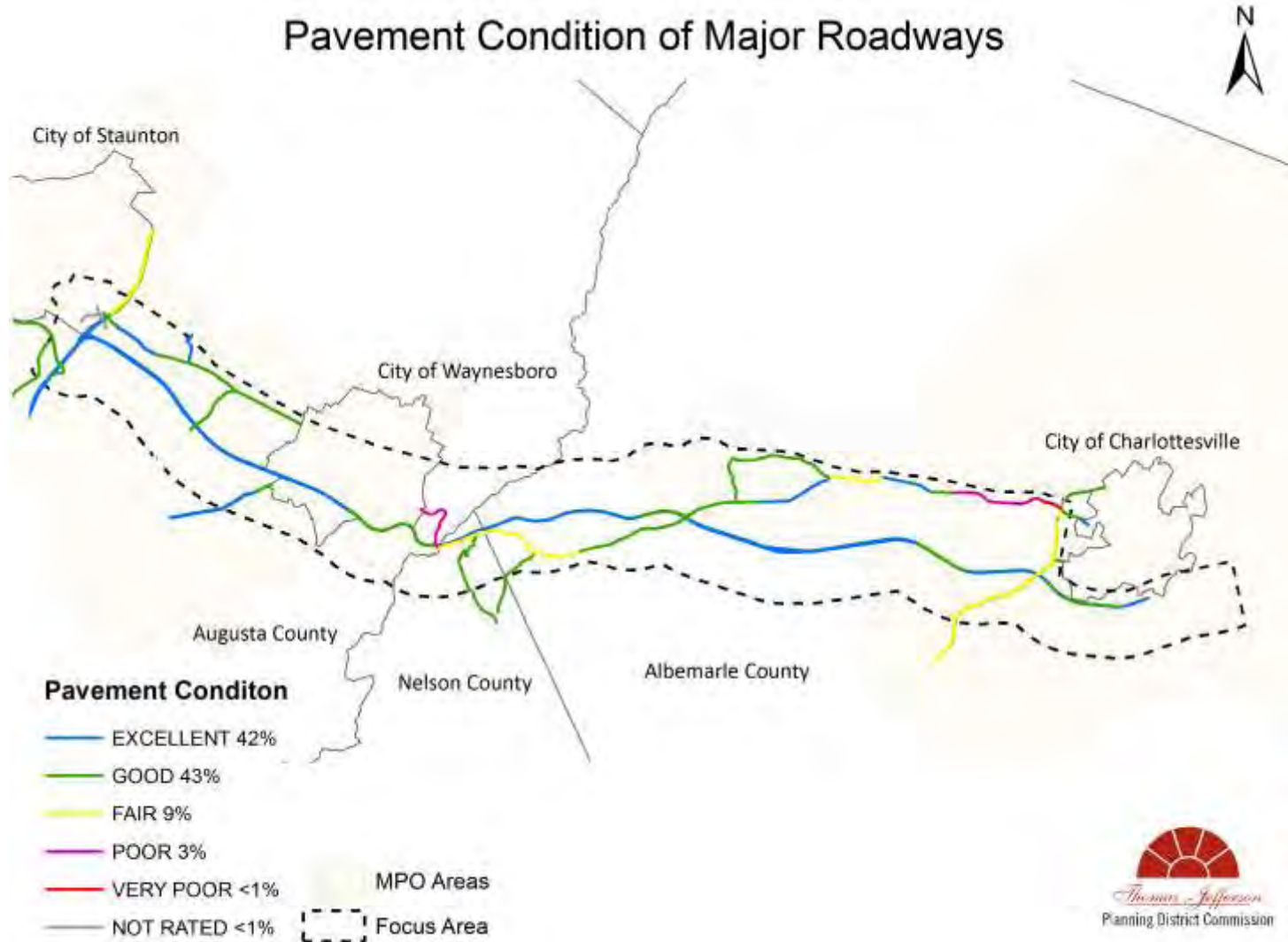
V to C Ratio - Exit 124



V to C Ratio - Exit 124



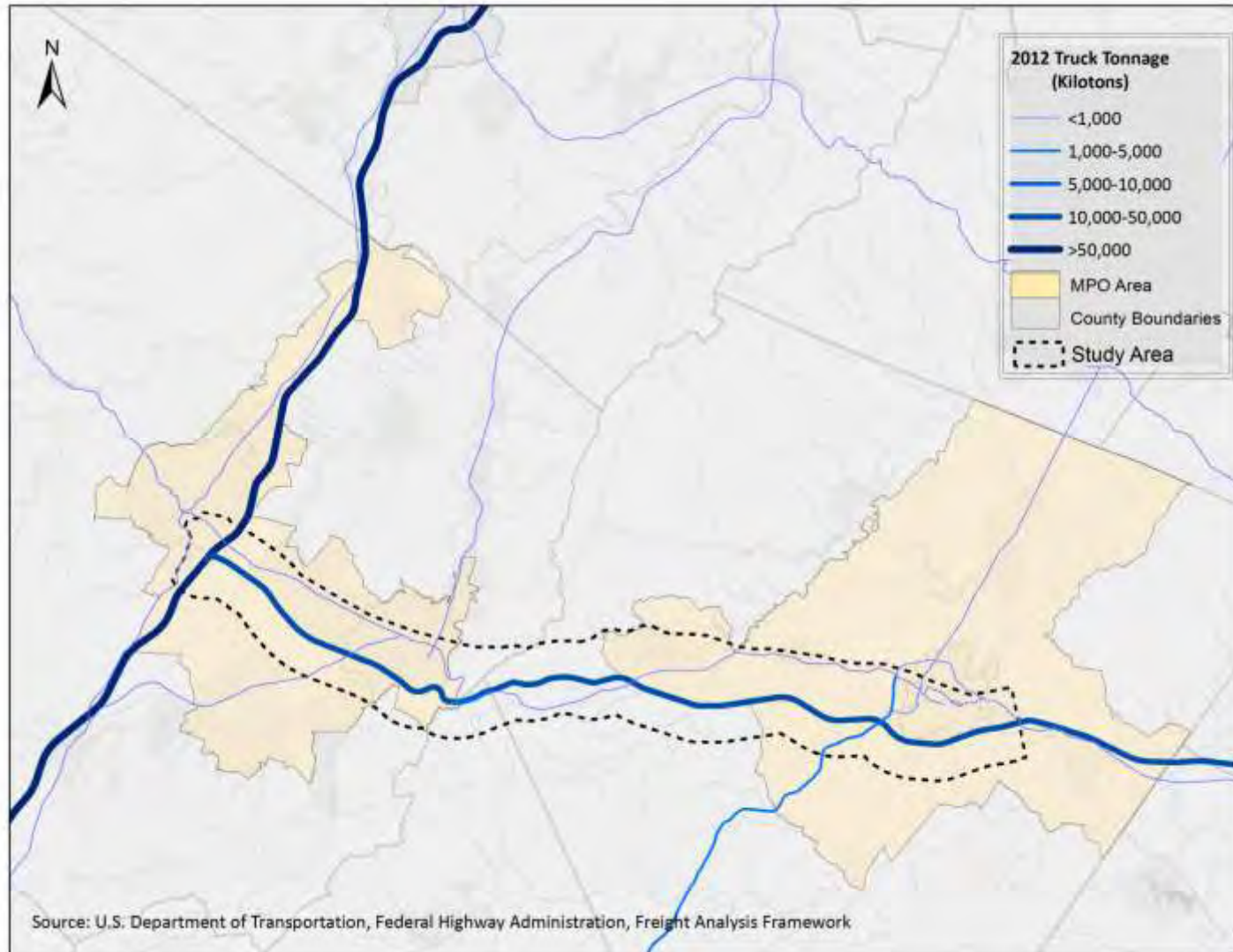
Pavement Conditions



Freight Traffic - Virginia



Freight Traffic – I-64 Corridor



D-282

QUESTIONS

Thomas Jefferson Planning District Commission

401 East Water Street
Charlottesville, VA 22902

Wood Hudson
Senior Planner

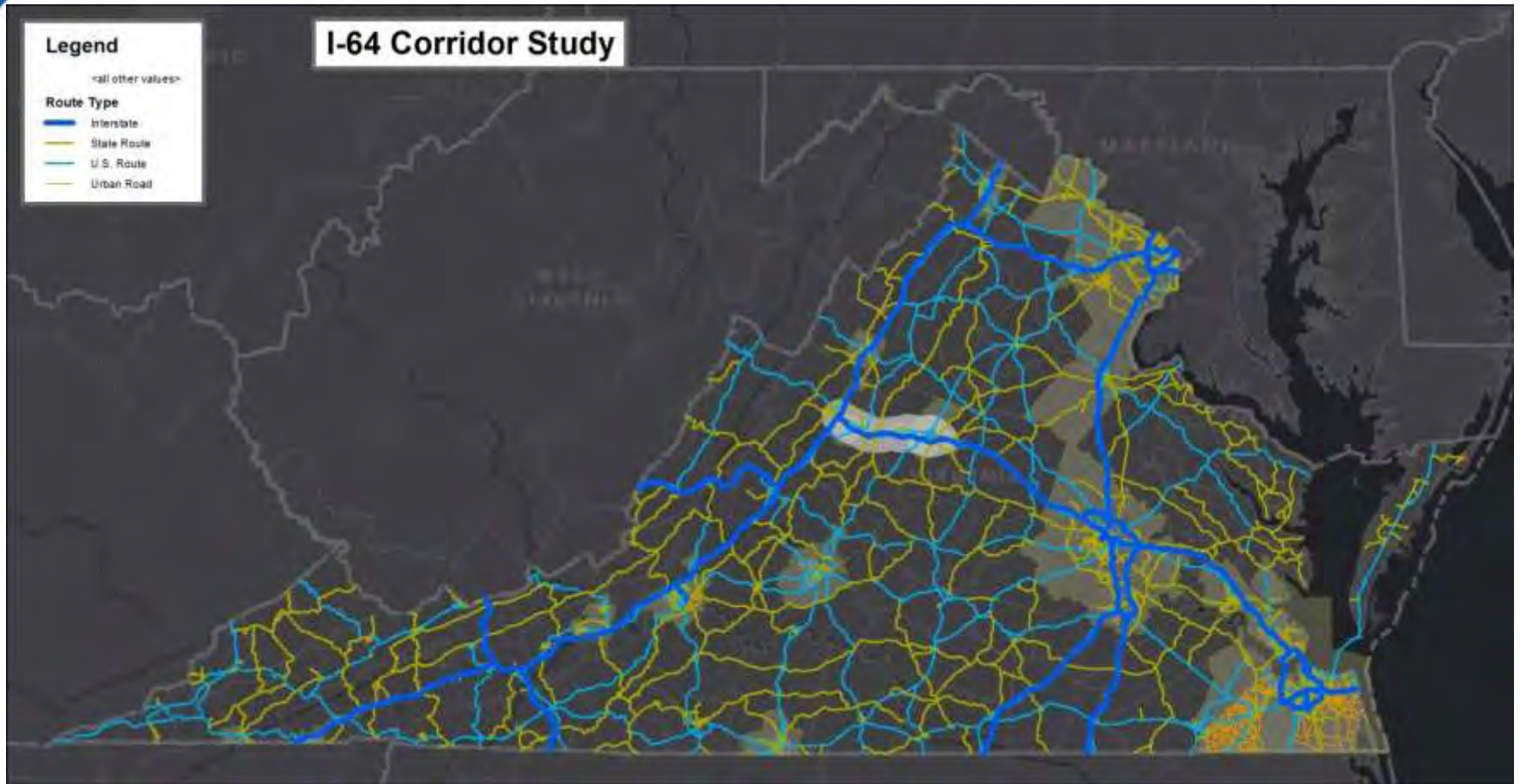
Resources: <http://campo.tjpd.org/>



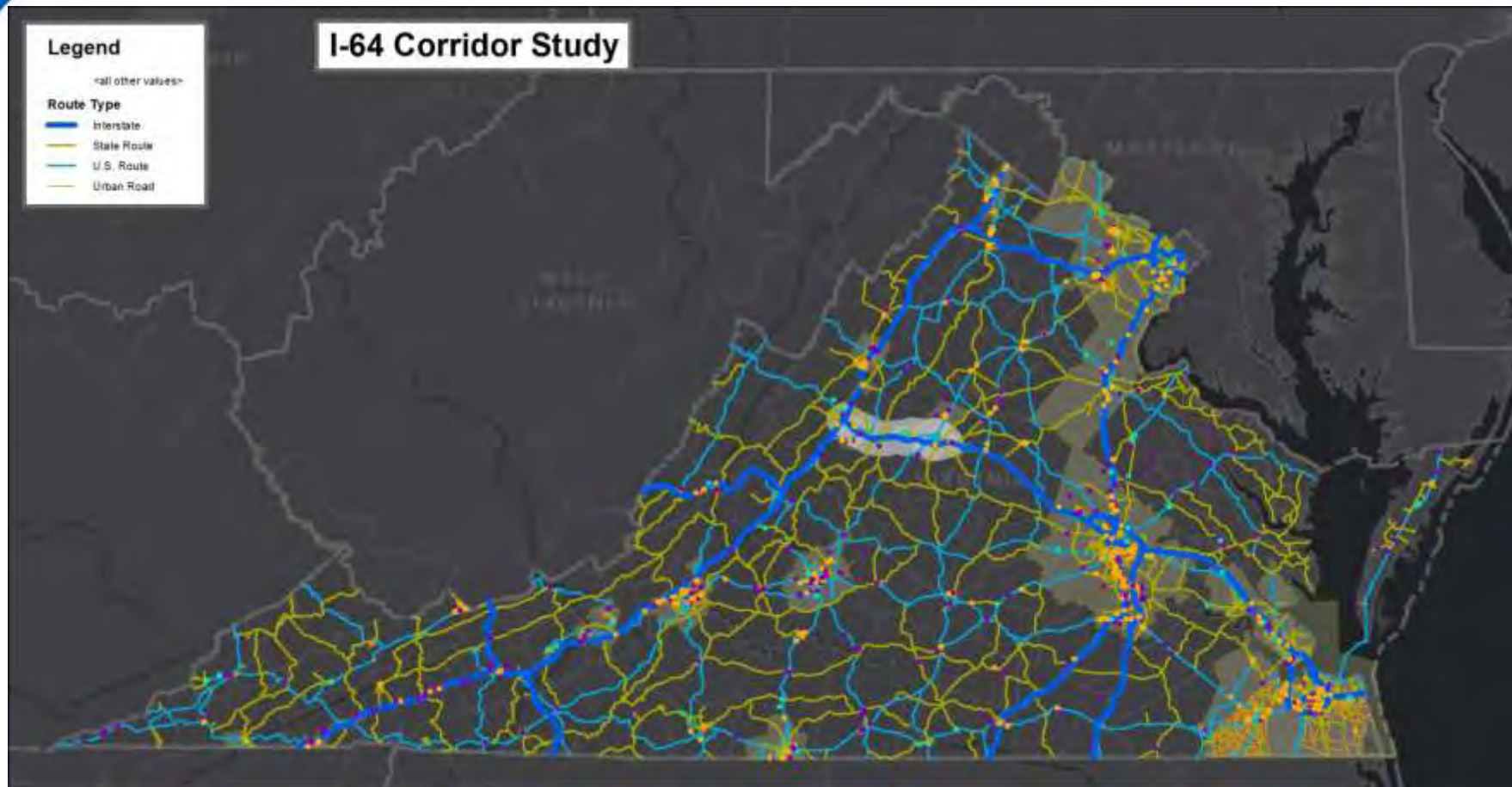
I-64 Corridor Study – Freight

Erik Johnson, Freight Planning Specialist

July 26, 2017



Virginia's Freight Generators

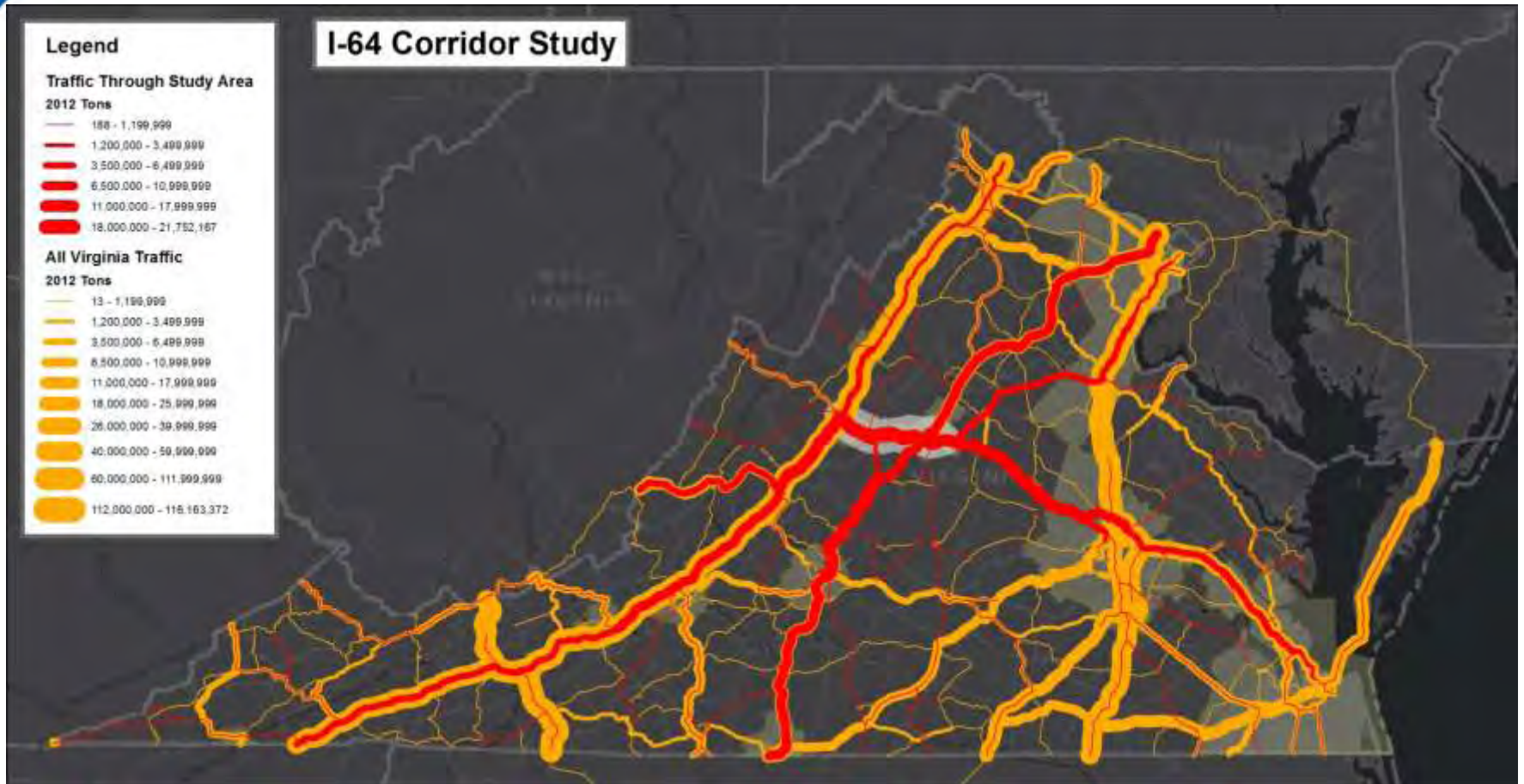


Study Area's Freight Generators



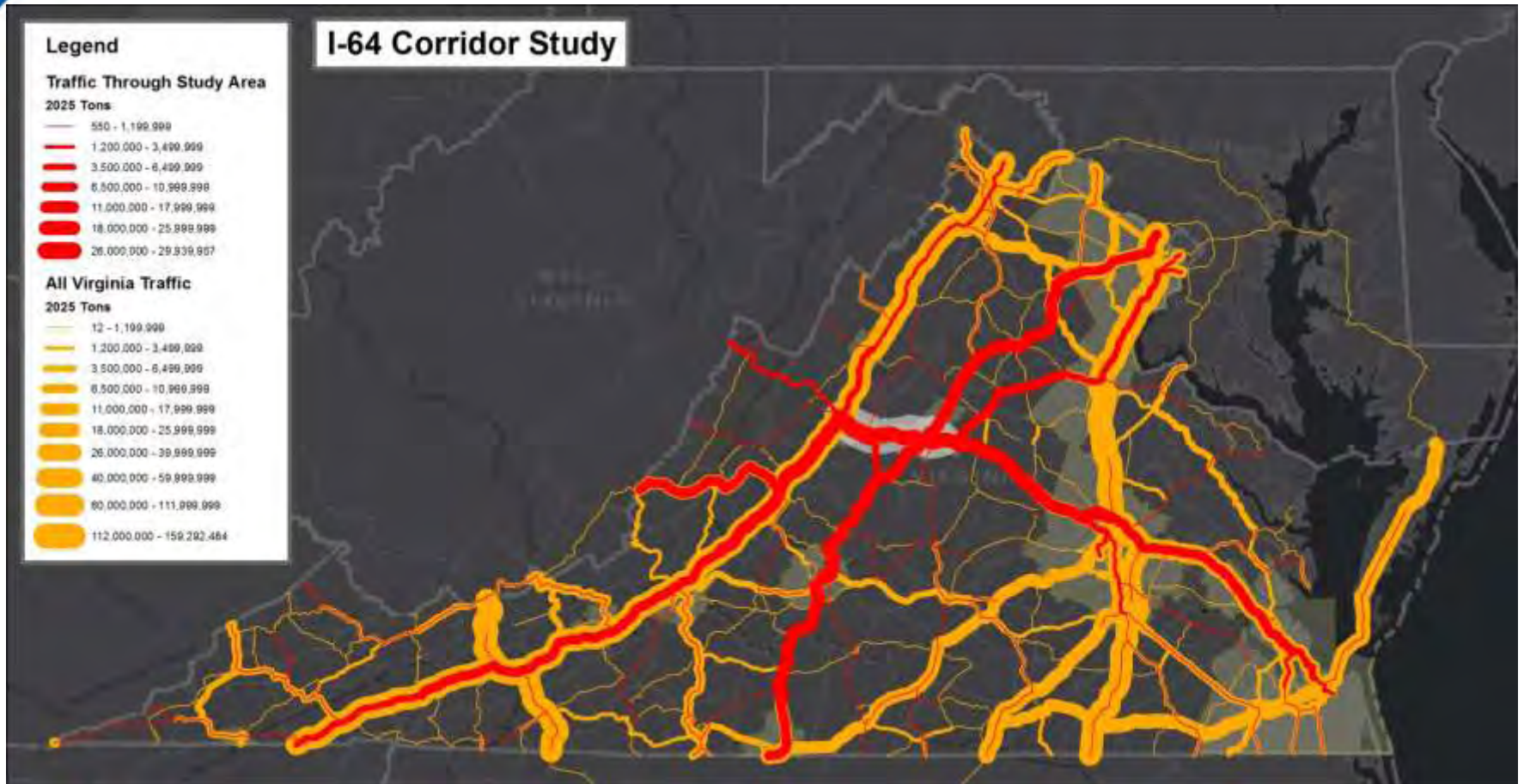
Study Area vs Total Virginia

Base Year (2012) Tons



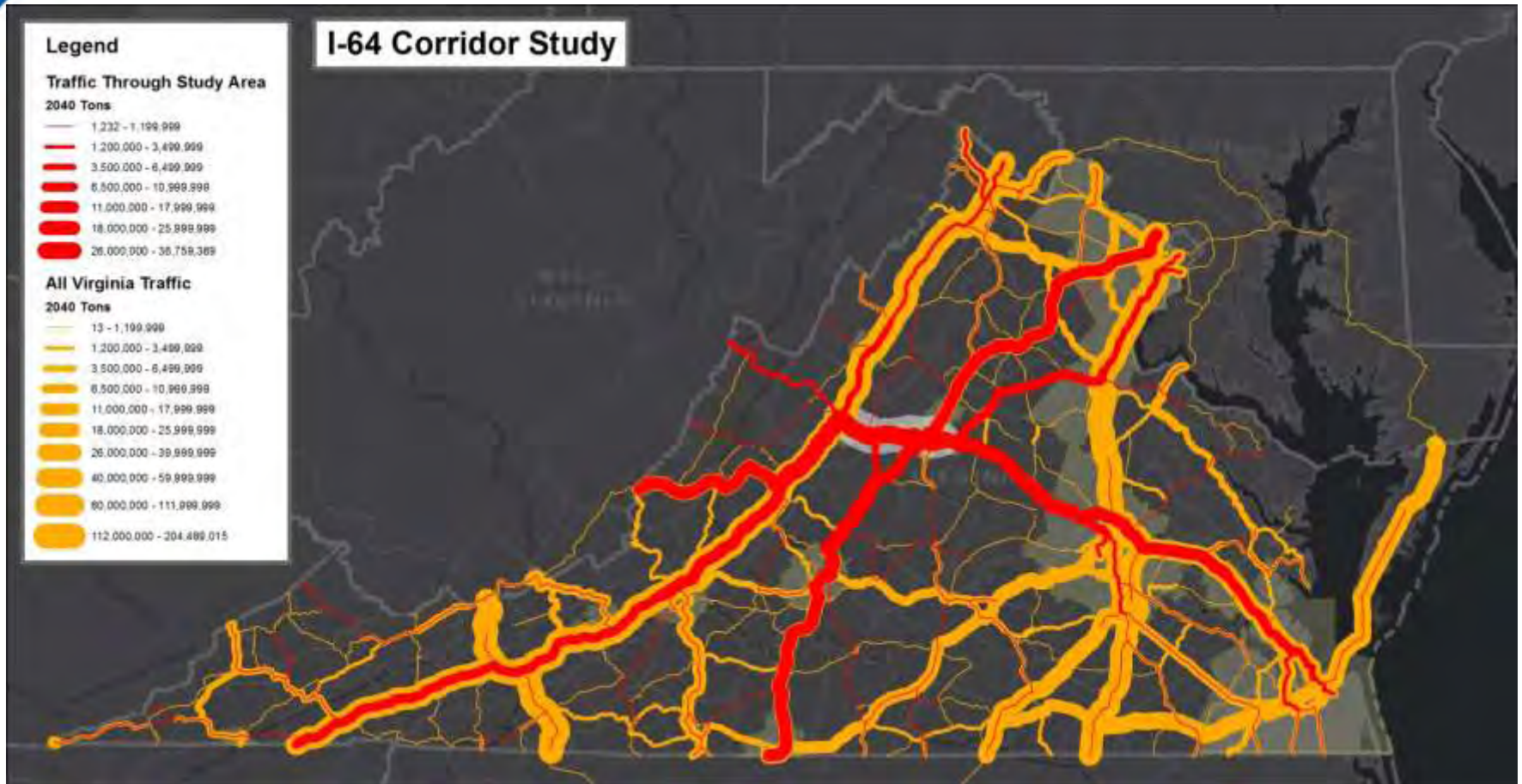
Study Area vs Total Virginia

Mid-term (2025) Tons



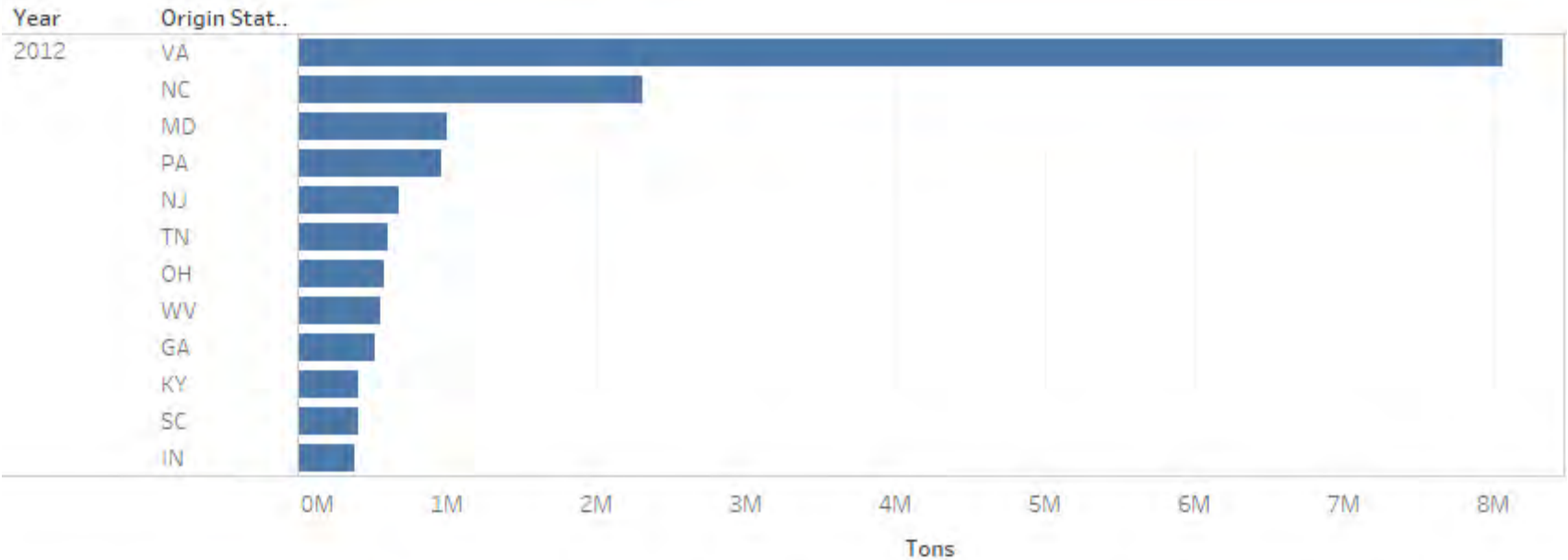
Study Area vs Total Virginia

Horizon Year (2040) Tons



Top Origins – 2012 Tons

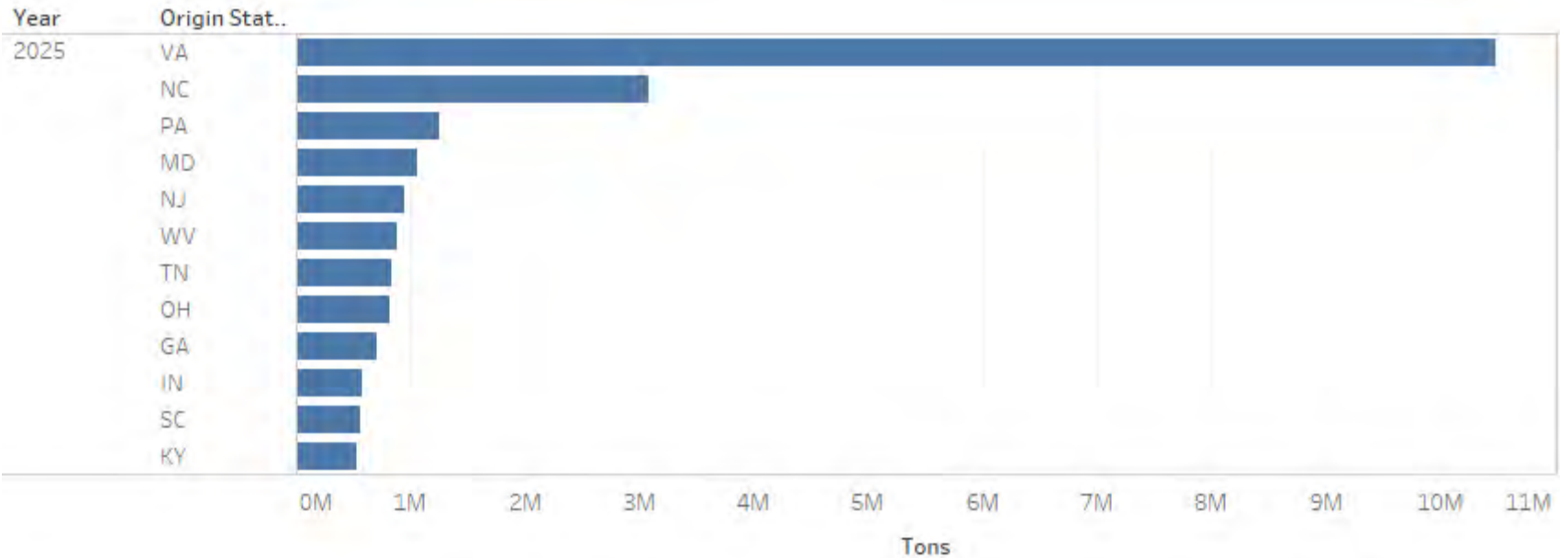
Top Origins - Tons



Sum of Tons for each Origin State (group) 1 broken down by Year. The view is filtered on Origin State (group) 1 and Year. The Origin State (group) 1 filter excludes AB, AG, AL and 69 more. The Year filter excludes 2025 and 2040.

Top Origins – 2025 Tons

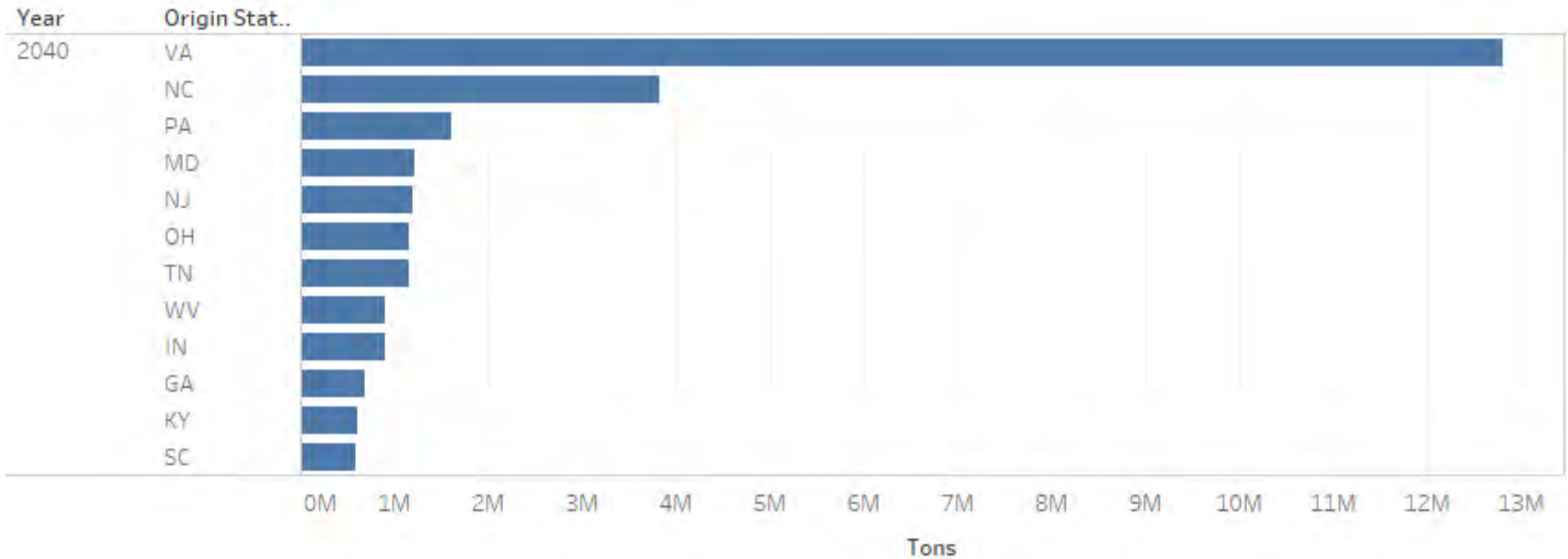
Top Origins - Tons



Sum of Tons for each Origin State (group) 1 broken down by Year. The view is filtered on Origin State (group) 1 and Year. The Origin State (group) 1 filter excludes AB, AG, AL and 69 more. The Year filter excludes 2012 and 2040.

Top Origins – 2040 Tons

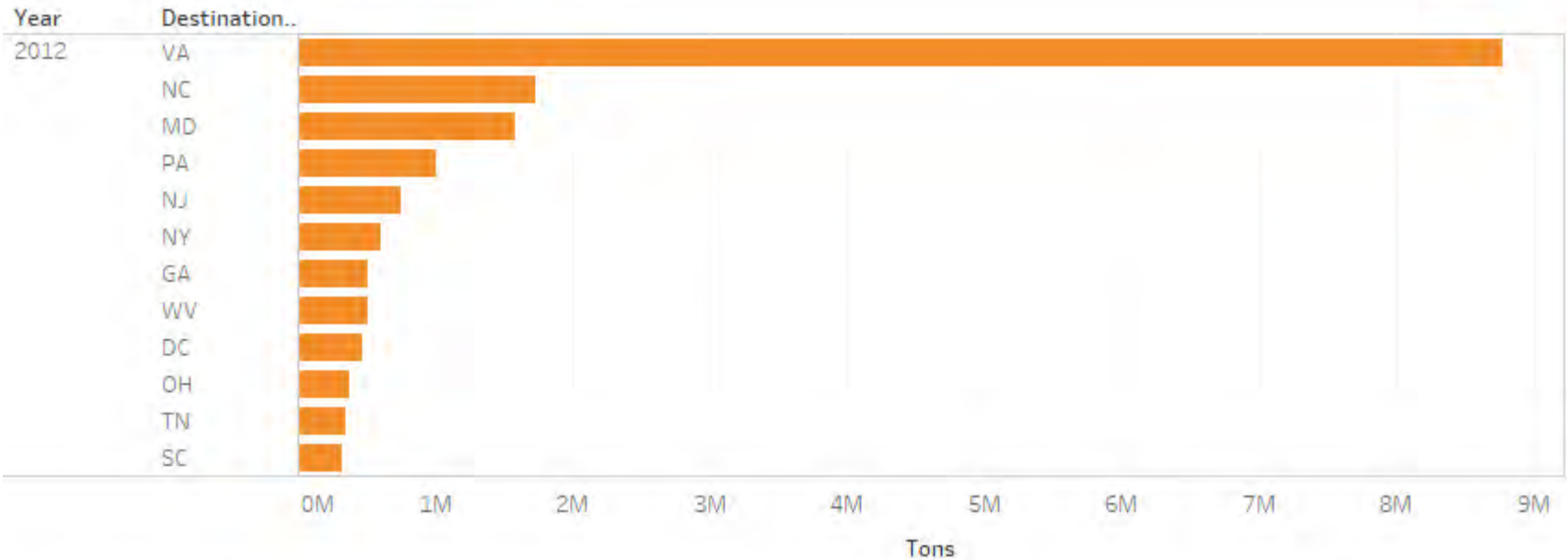
Top Origins - Tons



Sum of Tons for each Origin State (group) 1 broken down by Year. The view is filtered on Origin State (group) 1 and Year. The Origin State (group) 1 filter excludes AB, AG, AL and 69 more. The Year filter excludes 2012 and 2025.

Top Destinations – 2012 Tons

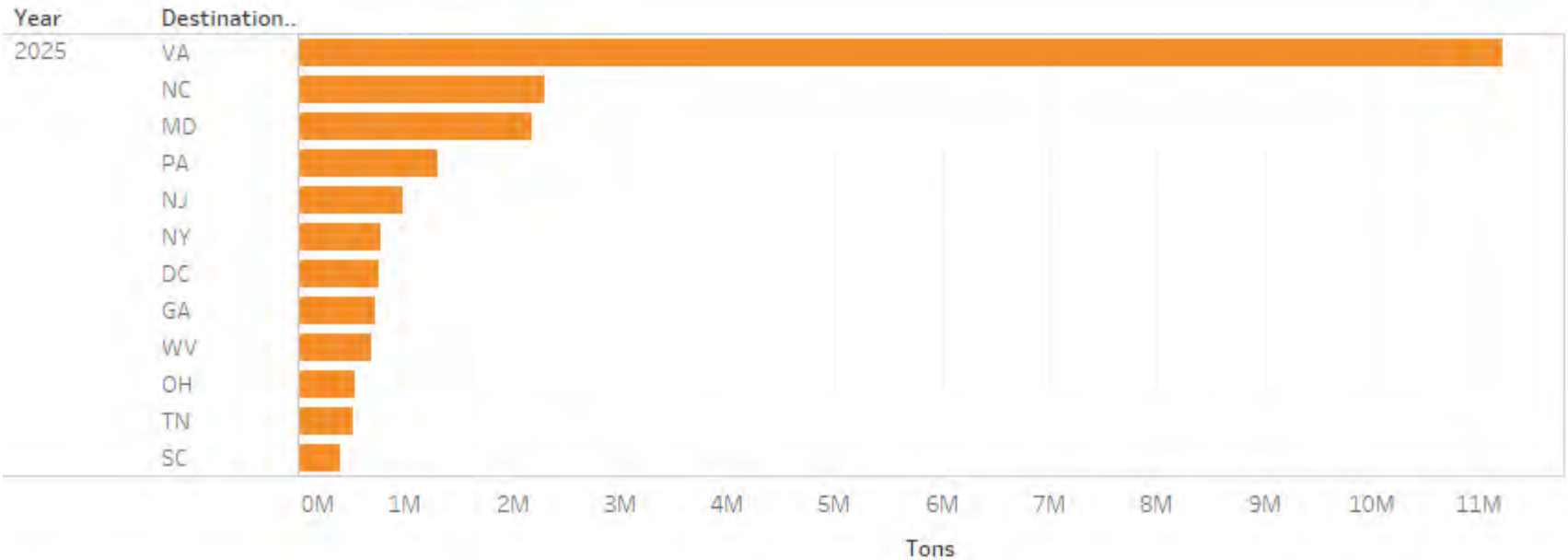
Top Destinations - Tons



Sum of Tons for each Destination State (group) broken down by Year. The view is filtered on Destination State (group) and Year. The Destination State (group) filter excludes Canada & Mexico. The Year filter excludes 2025 and 2040

Top Destinations – 2025 Tons

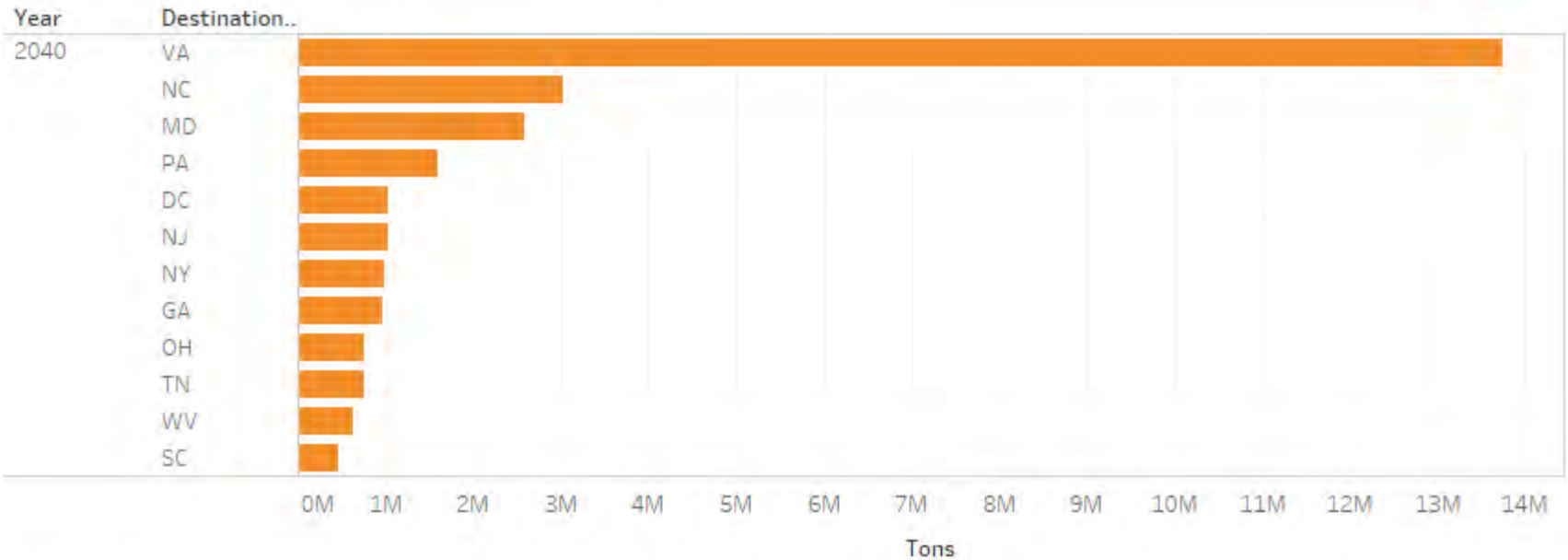
Top Destinations - Tons



Sum of Tons for each Destination State (group) broken down by Year. The view is filtered on Destination State (group) and Year. The Destination State (group) filter excludes Canada & Mexico. The Year filter excludes 2012 and 2040

Top Destinations – 2040 Tons

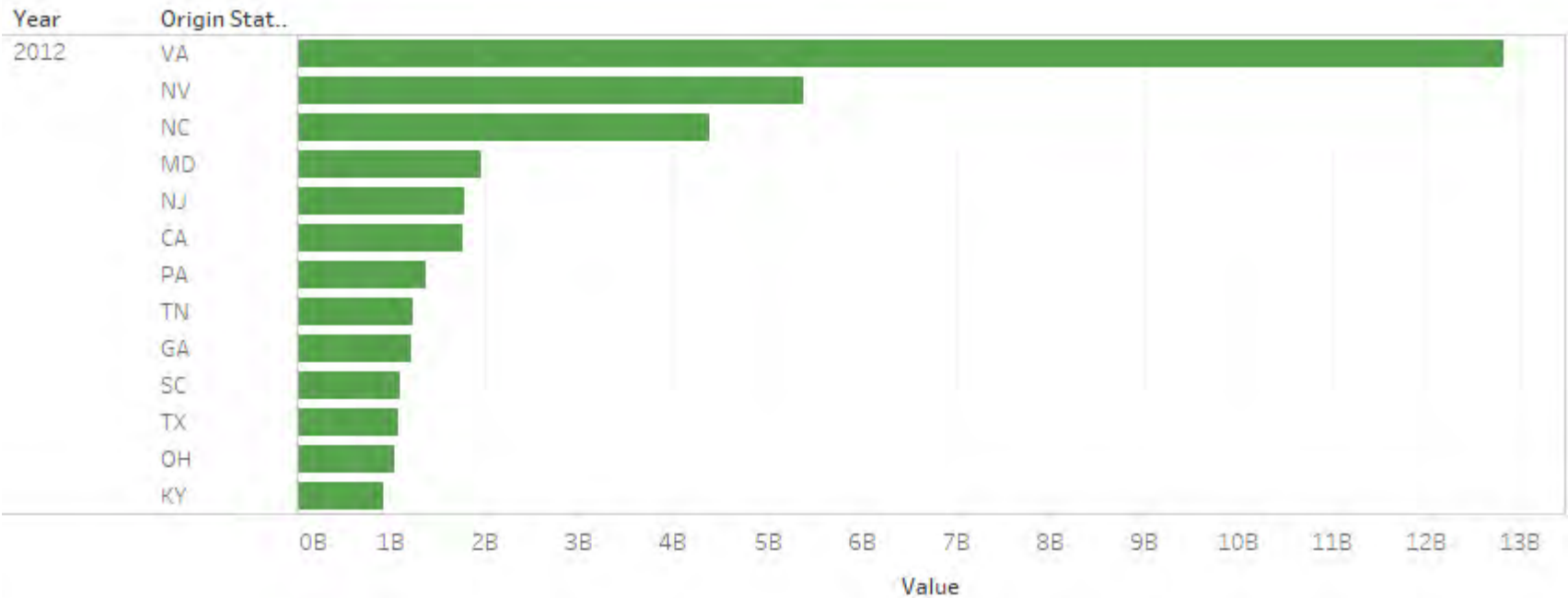
Top Destinations - Tons



Sum of Tons for each Destination State (group) broken down by Year. The view is filtered on Destination State (group) and Year. The Destination State (group) filter excludes Canada & Mexico. The Year filter excludes 2012 and 2025.

Top Origins – 2012 Value

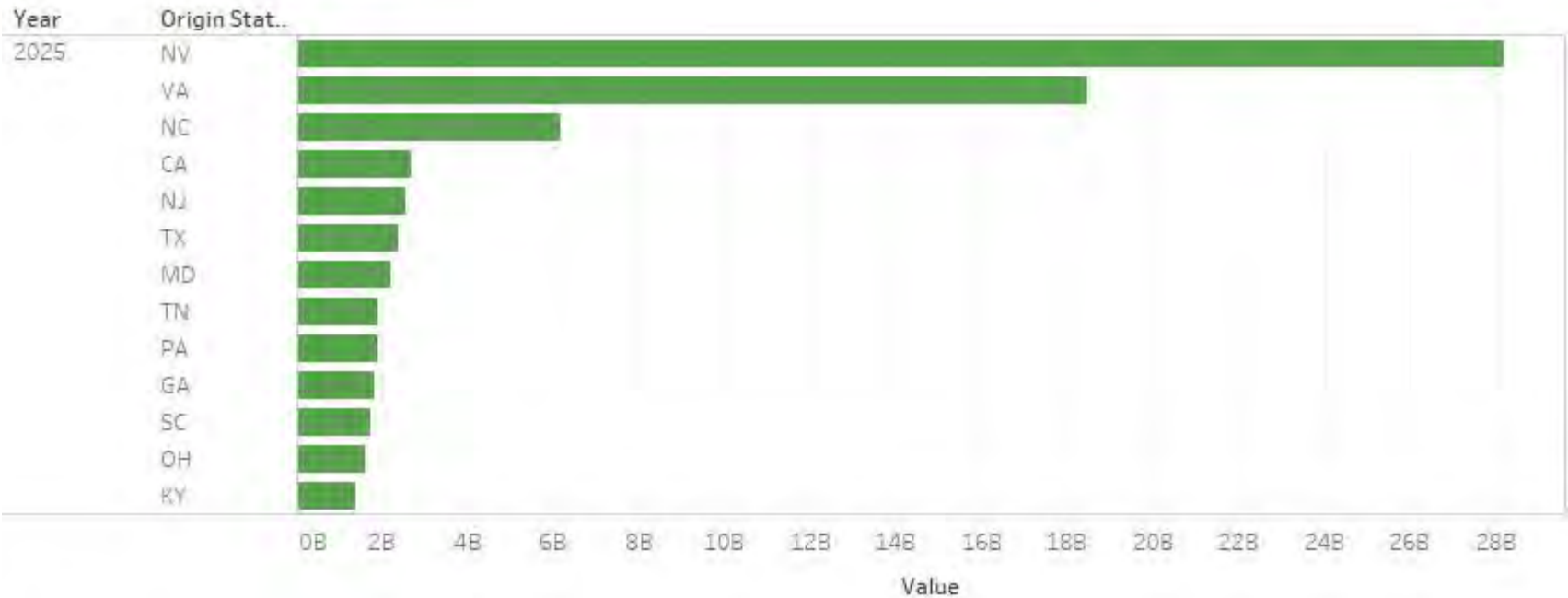
Top Origins - Value



Sum of Value for each Origin State (group) broken down by Year. The view is filtered on Year and Origin State (group). The Year filter keeps 2012. The Origin State (group) filter excludes Canada & Mexico.

Top Origins – 2025 Value

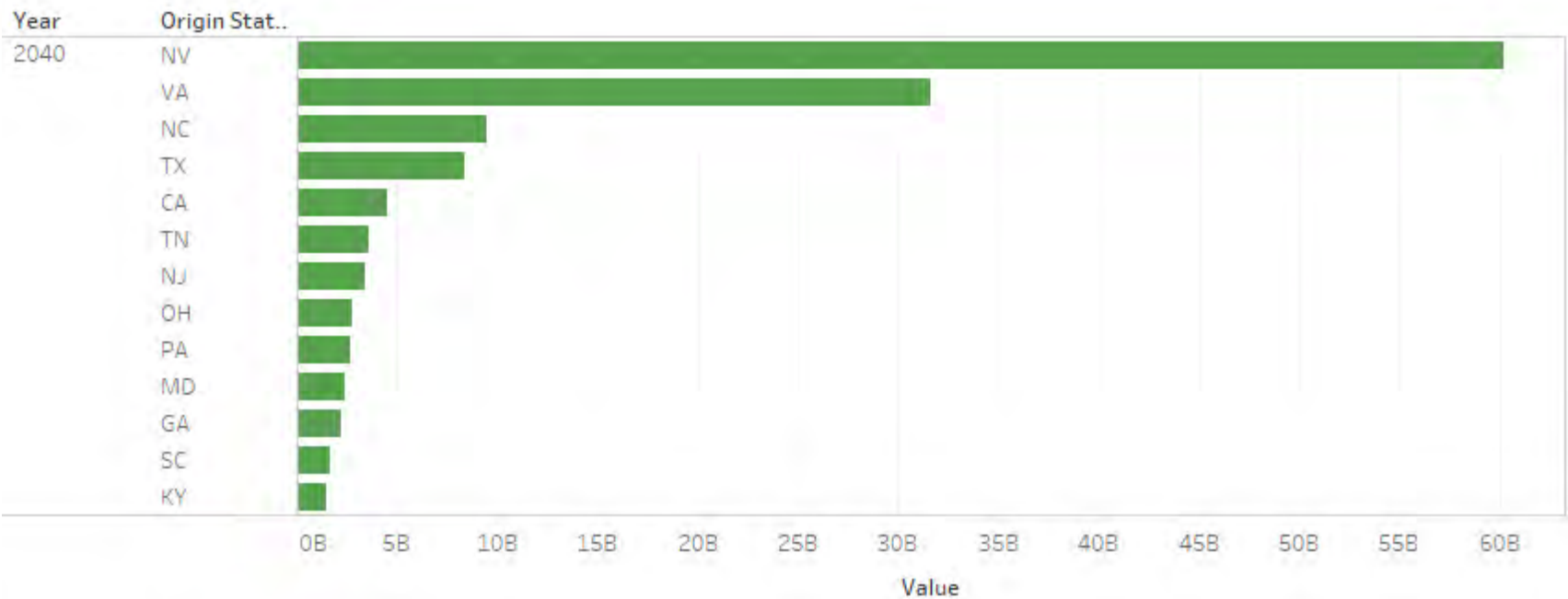
Top Origins - Value



Sum of Value for each Origin State (group) broken down by Year. The view is filtered on Year and Origin State (group). The Year filter keeps 2025. The Origin State (group) filter excludes Canada & Mexico.

Top Origins – 2040 Value

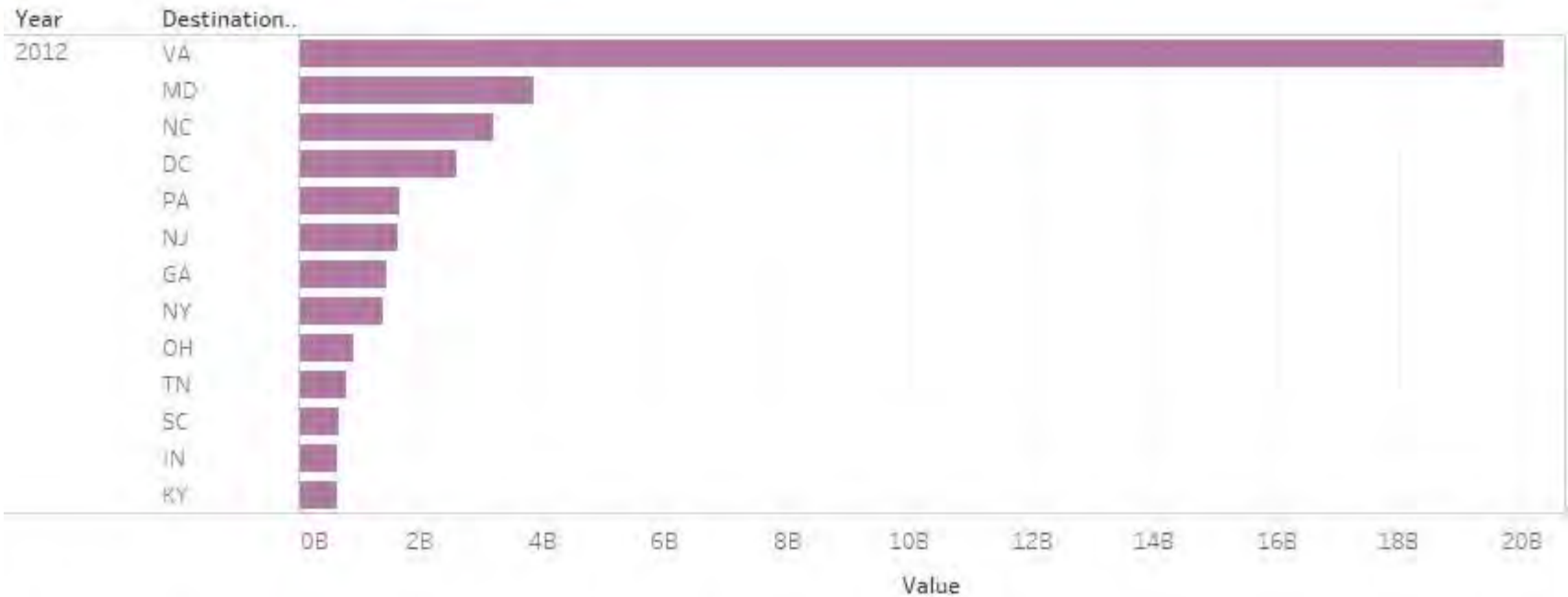
Top Origins - Value



Sum of Value for each Origin State (group) broken down by Year. The view is filtered on Year and Origin State (group). The Year filter keeps 2040. The Origin State (group) filter excludes Canada & Mexico.

Top Destinations – 2012 Value

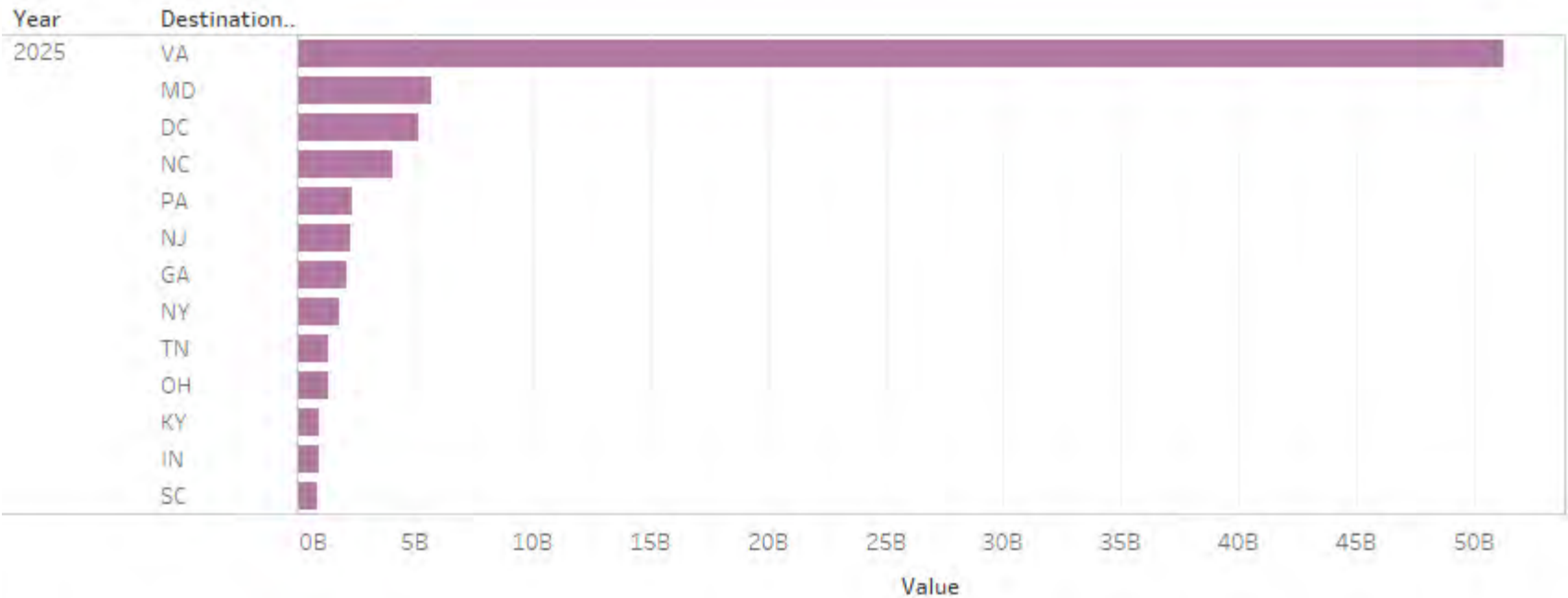
Top Destinations - Value



Sum of Value for each Destination State broken down by Year. The view is filtered on Year and Destination State. The Year filter keeps 2012. The Destination State filter keeps 13 of 87 members.

Top Destinations – 2025 Value

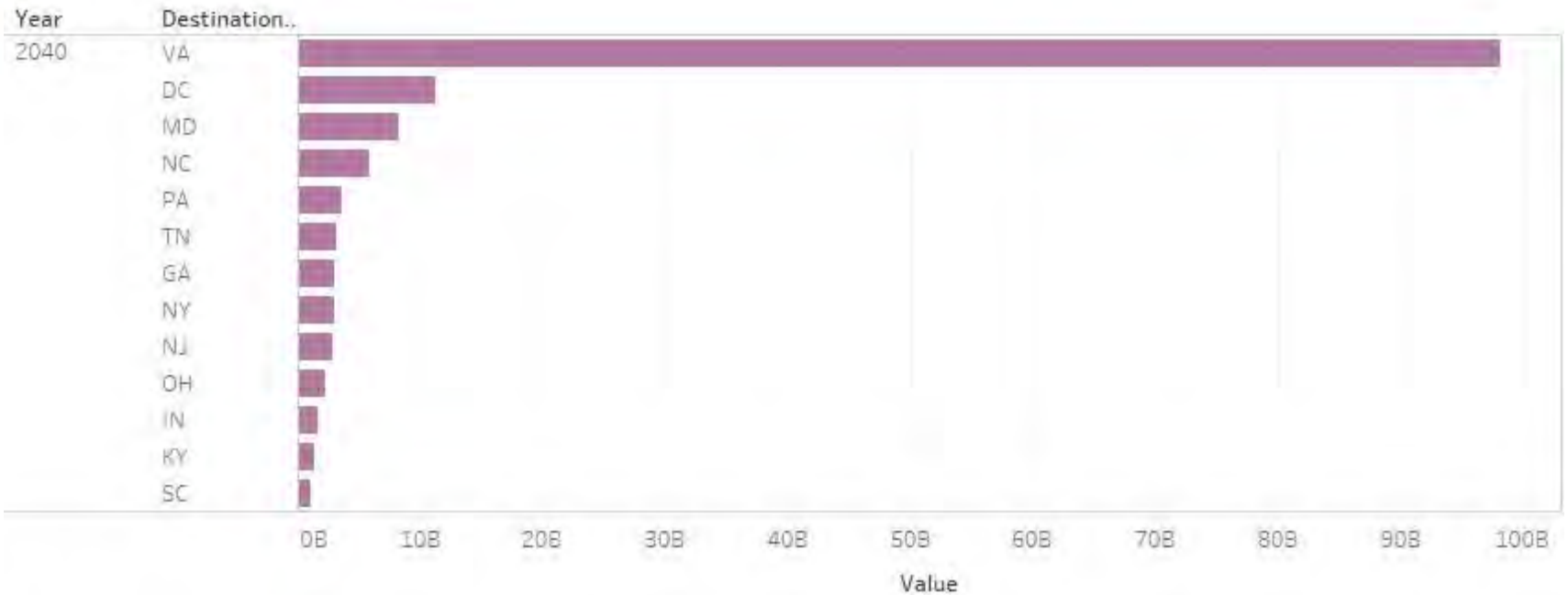
Top Destinations - Value



Sum of Value for each Destination State broken down by Year. The view is filtered on Year and Destination State. The Year filter keeps 2025. The Destination State filter keeps 13 of 87 members.

Top Destinations – 2040 Value

Top Destinations - Value



Sum of Value for each Destination State broken down by Year. The view is filtered on Year and Destination State. The Year filter keeps 2040. The Destination State filter keeps 13 of 87 members.

Top 15 Commodities – Tons (2012)

Commodity	Tons
Agricultural Products Except for Animal Feed (other)	2,084,409
Non-Metallic Mineral Products	1,725,176
Other Prepared Food Stuffs, and Fats and Oils	1,593,123
Waste and Scrap (except of agriculture or food)	1,436,346
Other Coal and Petroleum Products	1,179,437
Wood Products	1,100,794
Logs and Other Wood in the Rough	874,703
Plastics and Rubber	835,490
Milled Grain Products and Preparations, and Bakery Products	781,999
Other Chemical Products and Preparations	760,467
Other Non-Metallic Minerals	629,255
Articles of Base Metal	615,018
Furniture, Mattresses and Mattress Supports, Lamps, Lighting Fittings, and Illuminated Signs	488,793
Meat, Fish, and Seafood and Their Preparations	467,189
Animal Feed and Products of Animal Origin	449,284

Top 15 Commodities – Tons (2025)

Commodity	Tons
Non-Metallic Mineral Products	2,945,292
Agricultural Products Except for Animal Feed (other)	2,028,037
Waste and Scrap (except of agriculture or food)	1,981,369
Other Prepared Food Stuffs, and Fats and Oils	1,894,126
Wood Products	1,450,970
Other Coal and Petroleum Products	1,326,862
Plastics and Rubber	1,293,519
Logs and Other Wood in the Rough	1,229,574
Other Chemical Products and Preparations	1,109,425
Milled Grain Products and Preparations, and Bakery Products	995,942
Other Non-Metallic Minerals	858,457
Articles of Base Metal	753,526
Furniture, Mattresses and Mattress Supports, Lamps, Lighting Fittings, and Illuminated Signs	675,719
Meat, Fish, and Seafood and Their Preparations	621,810
Animal Feed and Products of Animal Origin	602,091

Top 15 Commodities – Tons (2040)

Commodity	Tons
Non-Metallic Mineral Products	3,921,905
Waste and Scrap (except of agriculture or food)	2,679,685
Agricultural Products Except for Animal Feed (other)	2,346,761
Other Prepared Food Stuffs, and Fats and Oils	2,278,380
Plastics and Rubber	1,825,698
Other Chemical Products and Preparations	1,463,915
Wood Products	1,442,559
Milled Grain Products and Preparations, and Bakery Products	1,263,399
Other Coal and Petroleum Products	1,238,004
Logs and Other Wood in the Rough	1,117,512
Other Non-Metallic Minerals	949,393
Meat, Fish, and Seafood and Their Preparations	896,044
Furniture, Mattresses and Mattress Supports, Lamps, Lighting Fittings, and Illuminated Signs	874,742
Animal Feed and Products of Animal Origin	772,605
Articles of Base Metal	729,985

Top 15 Commodities – Value (2012)

Commodity	Value
Miscellaneous Manufactured Products	6,036,461,517
Electronic and Other Electrical Equipment and Components, and Office Equipment	4,031,940,516
Motorized and Other Vehicles (including parts)	3,427,224,858
Transportation Equipment	3,164,559,139
Machinery	2,904,666,288
Plastics and Rubber	2,693,390,425
Textiles, Leather, and Articles of Textiles or Leather	2,254,955,343
Other Chemical Products and Preparations	2,159,973,268
Meat, Fish, and Seafood and Their Preparations	1,855,333,664
Articles of Base Metal	1,813,638,012
Agricultural Products Except for Animal Feed (other)	1,710,902,058
Other Prepared Food Stuffs, and Fats and Oils	1,675,525,120
Milled Grain Products and Preparations, and Bakery Products	1,198,419,320
Furniture, Mattresses and Mattress Supports, Lamps, Lighting Fittings, and Illuminated Signs	1,182,381,363
Metallic Ores and Concentrates	769,397,447

Top 15 Commodities – Value (2025)

Commodity	Value
Miscellaneous Manufactured Products	28,372,753,910
Electronic and Other Electrical Equipment and Components, and Office Equipment	8,940,223,034
Transportation Equipment	5,805,980,896
Motorized and Other Vehicles (including parts)	4,986,418,676
Machinery	4,439,585,458
Plastics and Rubber	4,190,864,112
Metallic Ores and Concentrates	3,955,619,483
Other Chemical Products and Preparations	3,263,612,763
Meat, Fish, and Seafood and Their Preparations	2,437,560,894
Articles of Base Metal	2,333,064,794
Textiles, Leather, and Articles of Textiles or Leather	2,202,035,409
Other Prepared Food Stuffs, and Fats and Oils	2,032,113,981
Agricultural Products Except for Animal Feed (other)	1,801,564,239
Furniture, Mattresses and Mattress Supports, Lamps, Lighting Fittings, and Illuminated Signs	1,629,580,042
Milled Grain Products and Preparations, and Bakery Products	1,480,803,022

Top 15 Commodities – Value (2040)

Commodity	Value
Miscellaneous Manufactured Products	59,766,818,650
Electronic and Other Electrical Equipment and Components, and Office Equipment	23,180,813,265
Transportation Equipment	10,960,938,218
Metallic Ores and Concentrates	8,425,330,230
Machinery	6,354,767,749
Motorized and Other Vehicles (including parts)	6,061,216,233
Plastics and Rubber	5,943,812,656
Other Chemical Products and Preparations	4,535,665,783
Meat, Fish, and Seafood and Their Preparations	3,450,775,852
Textiles, Leather, and Articles of Textiles or Leather	2,721,669,633
Other Prepared Food Stuffs, and Fats and Oils	2,479,910,861
Articles of Base Metal	2,456,652,680
Furniture, Mattresses and Mattress Supports, Lamps, Lighting Fittings, and Illuminated Signs	2,434,969,874
Agricultural Products Except for Animal Feed (other)	2,307,042,186
Milled Grain Products and Preparations, and Bakery Products	1,818,723,911



27 Years of Growth and Innovation

Freight Rail in the Shenandoah Valley ^{D-309}

1. **Short Line** - What is a short line railroad and how does it fit into the national rail system?
2. **Buckingham Branch** - What is the background on the Buckingham Branch Railroad?
3. **Regional Impact** - What is rail's impact on the region and what is the importance of rail to regional economic development?
4. **Challenges** - What challenges does the Buckingham Branch face in terms of infrastructure, access and other issues?
5. **Highway Traffic** - Can rail make a difference on the I-64 Corridor traffic congestion?

What is a short line railroad and how does it fit into the national transportation system?

“Short Line” Railroad



- **Number** - Approximately 600 short line railroads in the US
- **Track Miles** – Short Lines operate 47,500 miles of track (29% of all freight track) compared to 95,000 miles for Class 1 RRs
- **Small Business** – Average 30 employees; operate 79 miles of track



Short Line and Regional Railroads



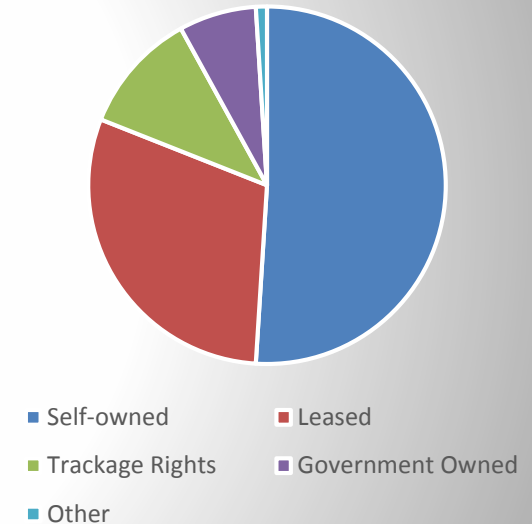
Class 1 Railroads

“Short Line” Railroad



- **Revenue definition** - Annual Operating Revenue less than \$36.6 million
- **Connectivity** - Connect thousands of customers to the US main line rail network to offer seamless service for shipping lane
- **Rail Preservation** - Typically operating on track that would have otherwise been abandoned by a larger railroad

Short Line Railroad Miles Operated
By Type



Hallmarks of the Short Line Industry

- **Customer Focus** - flexible and responsive to the unique needs of each customer
- **Entrepreneurial Spirit** – success is dependent on aggressively pursuing business, advocating for customers, and investing in track
- **Connecting to Markets** – Short Lines are often the only direct link to national rail network for rural and small town America
- **Business Development** – Focused regional marketing & sales relationship and transload offerings

What is the background of the Buckingham Branch Railroad?



1988

2017

2 Employees

17 Miles of Track

1 Locomotives

**1988
BBRR
Founded**

**Dec 21, 2004
R&A Division
leased from
CSX**

**Spring 2007
BB takes over 24/7
Dispatching & Signals
73 Employees**

**Present
84 Employees**

**March 6, 1989
Ran First Train**

**1999, 10 years
7 Employees**

**2005
56 Employees**

**May 2009
VA Southern
Division Begins
77 Employees**

**October 2014
25th Anniversary
99 Employees**

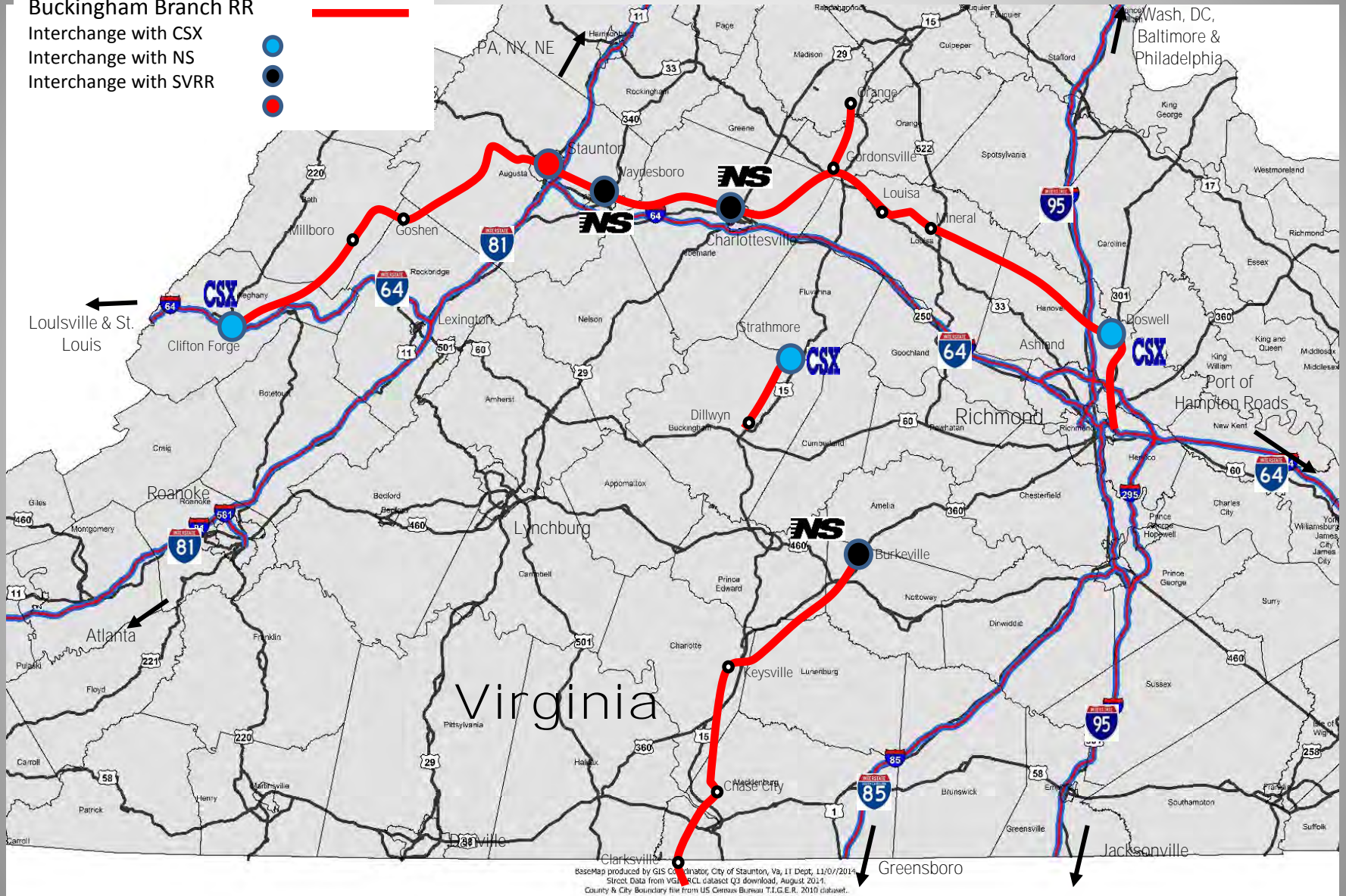


Buckingham Branch RR

Interchange with CSX

Interchange with NS

Interchange with SVRR



BaseMap produced by GIS Coordinator, City of Staunton, Va, 11 Dec, 11/07/2014
Street Data from VDOT, 11/07/2014
County & City Boundary file from US Census Bureau TIGER, 2010 dataset.

Current Operation

D-318

- 7 train crews running 30 trains a week
- ≈ 12,500 Carloads/year
 - Local - 1000
 - NS – 3000
 - CSX - 8500



- Approximately 20 CSX Overhead trains each week.
- 170,000 Empty cars/year



- Amtrak's "Cardinal" runs both directions 3 days a week amidst local and CSX Westbound traffic



**Safety is No 1 and the Buckingham
Branch is heavily regulated**

Training and Management Critical to Regulatory Compliance

Selected Regulatory Agencies -

- FRA
- EPA
- TSA
- FCC
- FMCSA
- FEMA
- OSHA
- PHMSA
- Va SCC



D-321 Investing In Our People



- Safety and Training Days are held each quarter for transportation, track, mechanical, and signal departments
- Hands-on and classroom training
- Safety training is held for all staff including office personnel



To remain viable, BB must make significant capital investment each year

- **Investment in:**

Track

Signals

Rolling Stock

Vehicles

Bridges

Highway Crossings

Heavy Equipment

Maintenance Facilities

- **Primary funding sources are Buckingham Branch and Virginia Rail Preservation Fund**

Investing in our Infrastructure : R&A Division D-323

➤ Tie Replacement

- 140,000 completed, 60,000 to go
- 600 Tons of Ballast per mile
- 1,000 ties per mile

➤ Rail Replacement

- $\approx \frac{1}{2}$ mile curve patch each year
- 10 mile CWR on Piedmont this year

➤ Undercutting

- Surface Improvement
- Joint Replacement
- Improved Drainage

➤ New Siding

- More efficient movement of empty trains

➤ Crossing surface replacements



D-324





Tie and Surface Upgrades



Completed Work



Not Yet Completed



Junctions



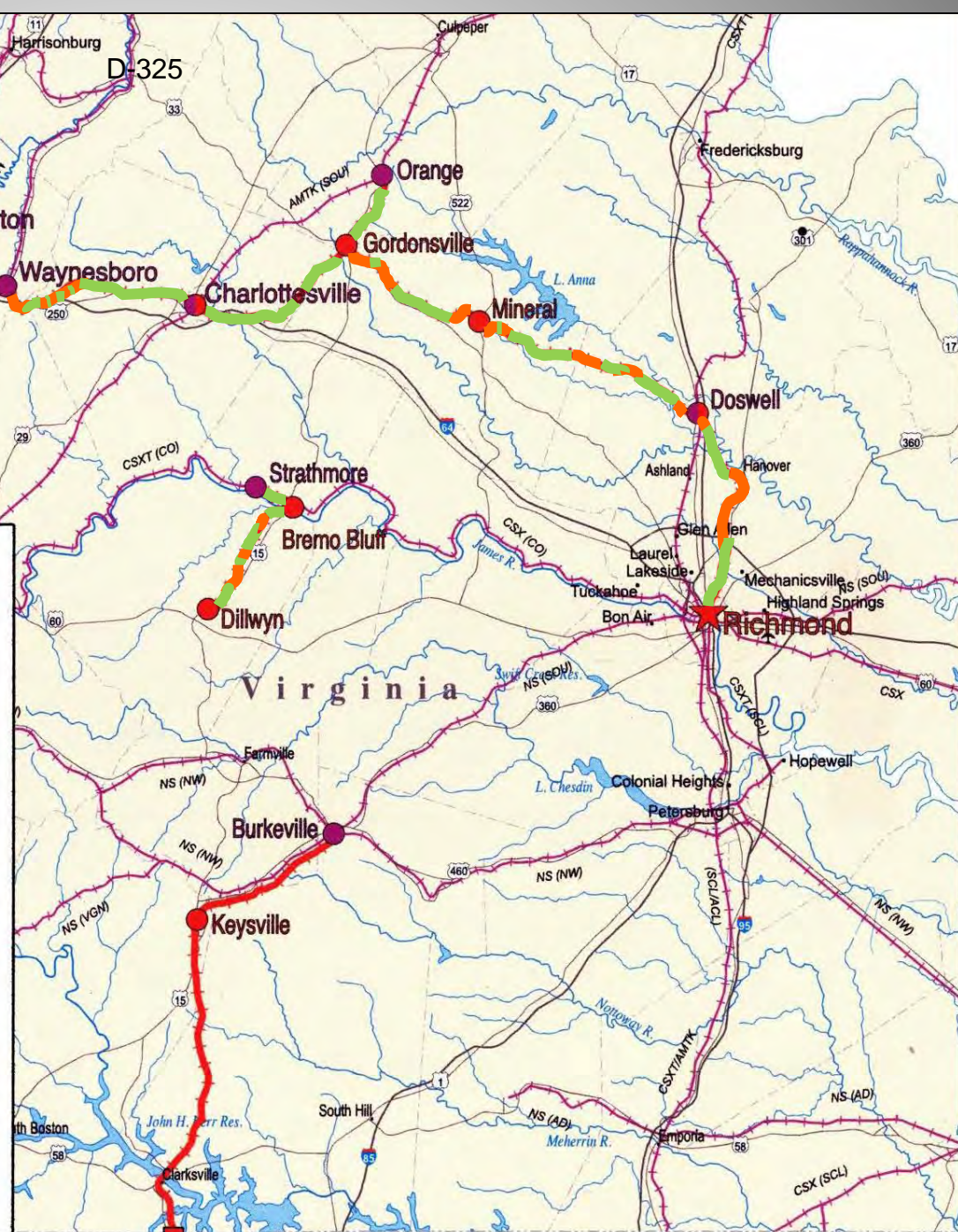
Buckingham Branch Stations



Junctions and BB Stations

0 10 Miles 25 Miles 50 Miles

0 10 KM 25 KM 50 KM



Investing in our equipment ^{D-326}

New Power - GP 38-2's



D-327



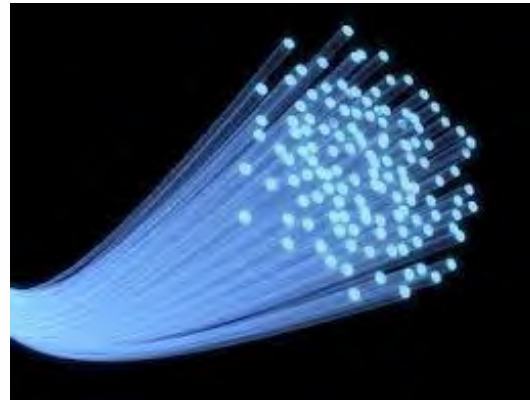
State-of-the Art Buckingham Branch Technology

D-328



LED light upgrades at grade crossings for improved reliability and visibility

Fiber optic in RoW



Tablets for train crews



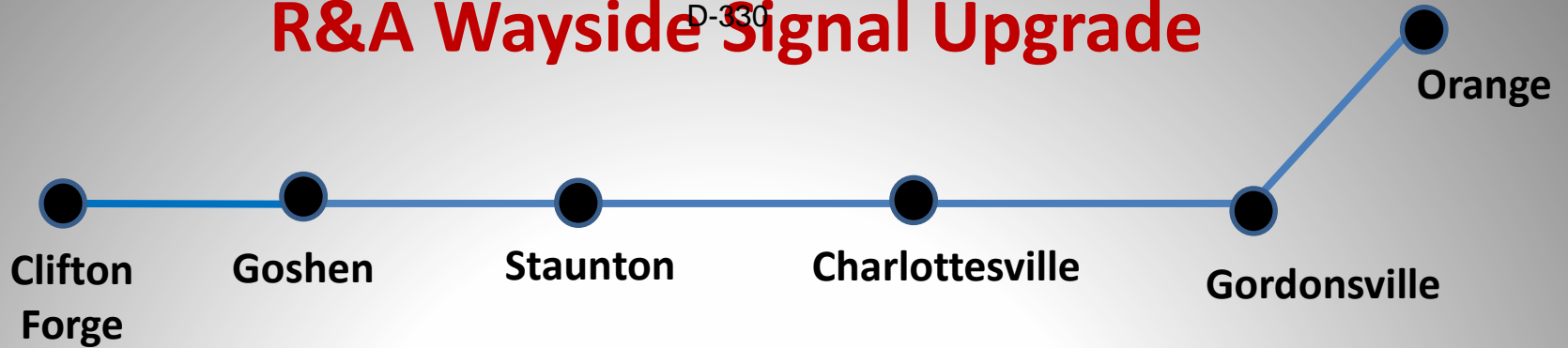
Samsung tablets enable train crews to update car deliveries and pick-ups in real time

D-329



R&A Wayside Signal Upgrade

D-330



- 125 miles
- Replacing existing open pole lines with new electronic track circuits
- Existing pole line being removed
- 9 phases
- Final Cutover was October 2016

D-331

State-of-the-Art Technology

- LED light upgrades at grade crossings for improved reliability and visibility



- Pole line was not always reliable or safe
- New signals travel through the rail



What is rail impact on the region?

Overall Regional Rail Impact

- 1. Buckingham Branch freight customers**
- 2. Shenandoah Valley Railroad freight customers**
- 3. Norfolk Southern freight customers (north-south lines through Charlottesville and Waynesboro)**
- 4. Amtrak passenger service from Charlottesville to Staunton (Cardinal Line from DC to Chicago)**

Selected BB Customers Across I-64



Other Selected BB Customers



What are challenges for BB?

Primary challenges

1. **Rail funding** - Threat to state Rail Preservation funding
2. **Capital investment** - Constant BB capital investment requirement – while competing with trucks that use publicly funded highways
3. **Lack of viable sites** – Jurisdictions not rail oriented – very limited rail-served sites and buildings available between Staunton and Charlottesville
4. **US Industrial Economy** – Sluggish growth
5. **Supply Chain** – Just-in-time shipping trend favors speed and inventory reductions vs. lower freight costs

**Can rail make a difference in
corridor traffic congestion?**

How can rail make a difference

1. **Rail served projects** – Every rail car takes 3-5 trucks off the highway for new or expanded manufacturing / distribution projects located on rail
2. **Transload/Intermodal** – Enables companies not located on rail to ship by rail / truck combination
3. **Passenger service** – Continued support for Amtrak service and future consideration of local passenger service /commuter service

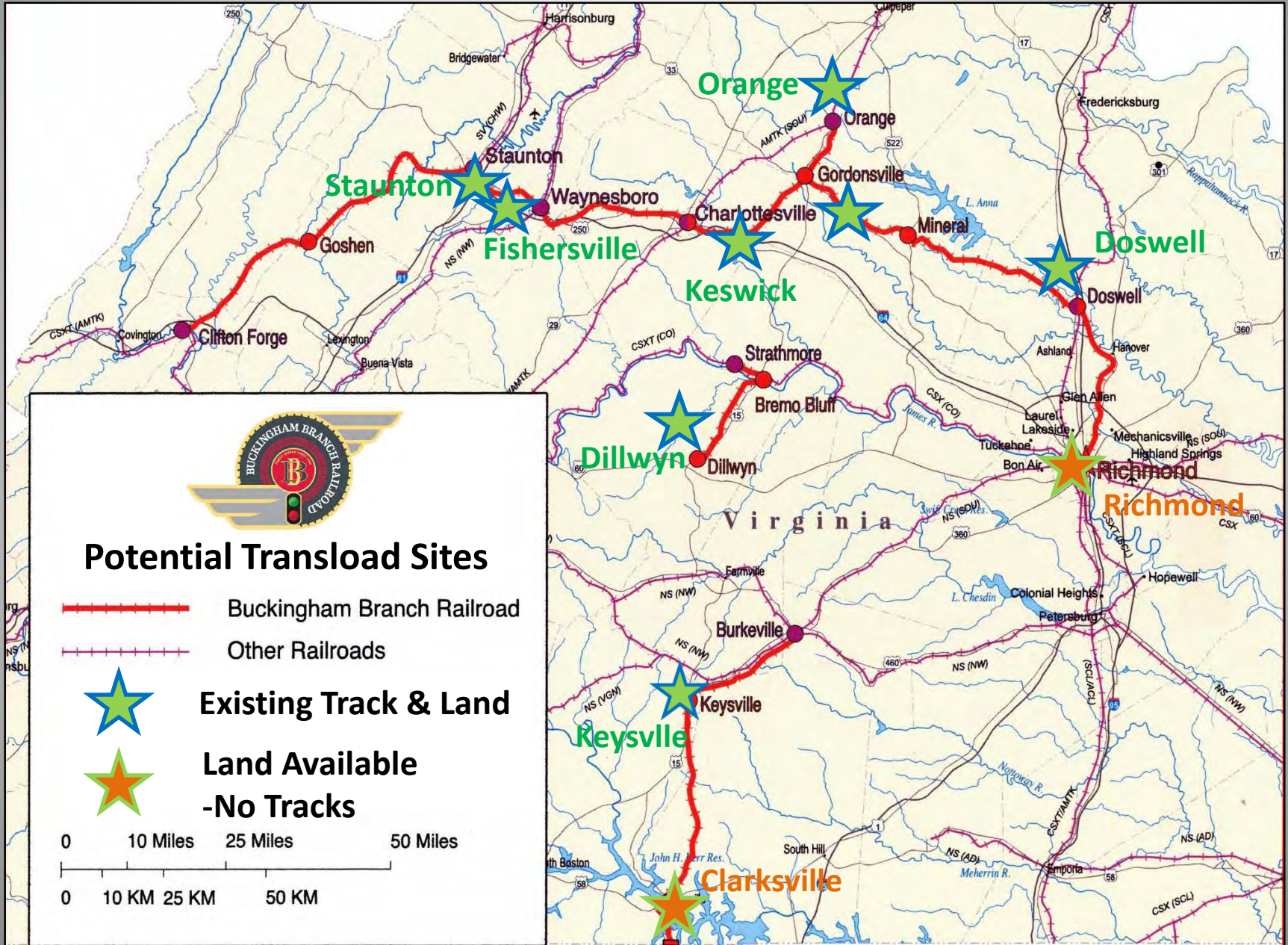
Buckingham Branch Transload – Intermodal Service

D-340

- **70+% of future, new rail freight business will come from transload / intermodal**
- **3 existing BB transload locations in corridor –**
 - Staunton (C&O Flats)
 - Fishersville (Downtown)
 - Keswick (Louisa Road & Hunt Club Road)

BB Transload Locations

D-341



Transload Example - D-342 Doswell Trans-load Facility Partner with Houff and ABC Trucking



Customer – Nestle-Purina

Freight – Bentonite (Powdered Clay) from Wyoming by rail to Doswell

Use – Trucked to Purina's kitty litter facility in King William

D-343

SHRP2 Interstate 64 Corridor Plan

Shenandoah Piedmont area Collaborative
Effort (SPaCE)

Final Working Group Meeting #6

September 22, 2017



Agenda

Scope

1. Status update
2. Plan Update
3. Draft Project Recommendations
4. Next Steps

Status Update

Status Update

- Project Webpage – **Completed**
- Draft MOU – **Pending Review**
- Database of Plans and Studies – **Map Online**
- Joint MPO Meetings – **Completed**
- Draft Corridor Study Report – **Drafting**

Status Update

Website

SHRP2 Interstate 64 Corridor Study



The SHRP2 Interstate 64 Corridor Study is a collaborative effort between the Charlottesville Albemarle MPO and the Staunton Augusta Waynesboro MPO. The project focuses on the 40 mile Interstate 64 corridor between Charlottesville and Staunton.



[Open the Corridor Study Storyboard and Map](#)

The project is made possible by funding provided by FHWA SHRP2 Implementation Assistance Program. The corridor study focuses on using the PlanWorks Decision Guide to inform the corridor study process and increase cooperation and collaboration between agencies and localities

[Project Fact Sheet](#)

[User Survey and Comment Form](#)



Public Meetings



Working Group

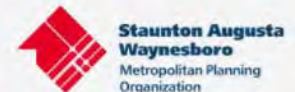


Project Resources

Why do the study?

The Interstate 64 corridor between Charlottesville and Staunton was constructed in the 1960's and has been incrementally upgraded over the intervening years. However, the roadway still remains primarily a four lane rural interstate. As the regions at either end of the study area have grown so has the demands on the roadway. Demographic and social trends have resulted in a significant number of commuting trips utilizing the corridor as people make their way from home to work. This demand mixed with increasing freight and through traffic demands have resulted in a number of high profile traffic incidents and road closures. Furthermore, the corridor passes through three VDOT construction districts and four regional transportation planning districts (two MPOs and two Rural Areas). This structure has resulted in a number of parties having interests in the corridor but infrequently working together to look at the corridor holistically.

Who is involved?



The study is being guided by the Policy Boards of the Charlottesville Albemarle MPO and the Staunton Augusta Waynesboro MPO who will be meeting jointly three times during the study. Information about joint meeting dates and scheduled is available at the CA-MPO or SAW-MPO Policy board web pages. The Policy boards and MPO staff are being supported by a [working group](#) whose membership includes representatives from VDOT construction districts, MPOs, local government staff, and experts from state and federal transportation agencies.

Status Update

Draft MOU



**Staunton Augusta
Waynesboro**
Metropolitan Planning
Organization

**MEMORANDUM OF UNDERSTANDING BETWEEN THE CHARLOTTESVILLE-ALBEMARLE
METROPOLITAN PLANNING ORGANIZATION AND THE STAUNTON-AUGUSTA-WAYNESBORO
METROPOLITAN PLANNING ORGANIZATION REGARDING
INTER-REGIONAL TRANSPORTATION PLANNING WITHIN THE I-64 CORRIDOR BETWEEN THE
CITIES OF CHARLOTTESVILLE AND STAUNTON, VIRGINIA**

This Memorandum of Understanding is made and entered into as of September 27, 2017, by and between the Charlottesville-Albemarle Metropolitan Planning Organization, hereinafter referred to as the CA-MPO, and the Staunton-Augusta-Waynesboro Metropolitan Planning Organization, hereinafter referred to as the SAWMPO.

WHEREAS, the 37 mile east-west segment of Interstate 64 connecting the cities of Charlottesville, Waynesboro and Staunton, Virginia, and the counties of Augusta and Albemarle, Virginia, is the primary multi-modal transportation corridor linking the Piedmont and Shenandoah Valley regions of Virginia, functioning as a critical link within the State's comprehensive transportation network for both inter-regional and interstate commerce; and

WHEREAS, the formal coordination of short- and long-range planning activities among local, regional, state and federal government agencies is instrumental to the improvement of transportation planning activities and the development of new transportation facilities within this corridor to produce an efficient, safe and cost effective transportation network; and

WHEREAS, the CA-MPO and the SAWMPO enter into this MOU to conduct transportation and transit planning and development activities within the I-64 corridor in a mutually beneficial manner to each MPO's unique transportation needs, and to the larger area as a whole; and

WHEREAS, transportation planning activities shall address planning for all transportation modes including, but not limited to, rail, bike and pedestrian planning, transit and travel demand management; and

WHEREAS, this MOU provides the framework for each MPO to review, comment, and provide letters of support for each other's transportation projects, Long Range Transportation Plans, grant applications, Transportation Improvement Programs, and when necessary, for projects and other transportation and transit activities located within, or that may affect, the corridor;

NOW THEREFORE, be it recognized and agreed that the CA-MPO and the SAWMPO will conduct inter-regional transportation planning in a collaborative manner within the I-64 corridor. It is also agreed that the following articles will guide the inter-regional cooperation efforts.

**Article 1
Corridor Boundaries**







The corridor boundary is defined as Interstate 64 from mile marker 124 westward to Interstate 81 south to mile marker 220 and to Interstate 81 north to mile marker 222, and US-250 from the Charlottesville US-29/US-250 bypass westward to the US-250 intersection in Staunton with Frontier Drive and North Frontier Drive. The corridor boundary includes the cities of Charlottesville, Waynesboro and Staunton and the counties of Augusta, Albemarle, and Nelson; and includes major transportation and multi-modal routes and connections that provide important corridor access points located within one-half mile of either I-64 or US-250. These connections include rail facilities serving Buckingham Branch, Norfolk-Southern and Amtrak rail operations.

**Article 2
Planning Activities**

Each MPO's Policy Board shall remain the sole decision making body regarding projects and transportation plans that fall within their respective jurisdictions. However, this MOU recognizes that transportation planning activities and projects within the corridor boundaries, listed in Article 1, should receive special attention if they may have an


Status Update

Database of Plans

A story map      

SHRP II I-64 Corridor Study

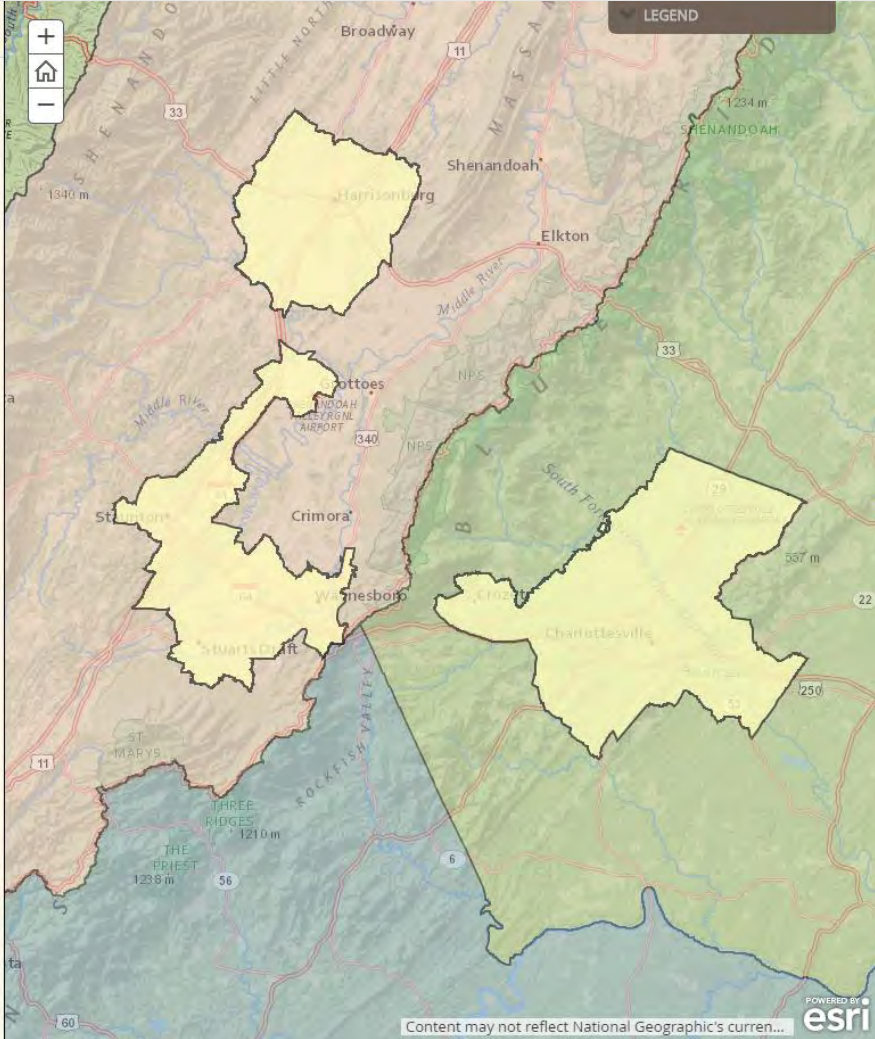
The SHRP2 Interstate 64 corridor project is a joint study between the Charlottesville Albemarle MPO and the Stanton Augusta Waynesboro MPO. The goal of the project is to utilize the Federal Highway Administration's **SHRP II**




PlanWorks corridor planning decision guide.

Project Location

The study area spans the I-64 Corridor from Pantops, east of Charlottesville to the City of Staunton. The study area crosses multiple jurisdictional boundaries and interests, including two Metropolitan Planning Organizations (MPOs), five counties...



Content may not reflect National Geographic's current... 

Draft Plan Sections

Plan Sections

- Executive Summary
- Introduction
- Background
- Use of PlanWorks
- Public and Working Group Involvement
- Existing Conditions
- Recommendations and Hotspots
- Implementation
- Lessons Learned

Draft Project Recommendations

Recommendations

- **Safety**
 - ▣ Address slow moving vehicles at Afton and Ivy
 - ▣ Address over capacity interchanges
 - ▣ Reduce vehicle wildlife conflicts
 - ▣ Improve problem intersections
- **Truck Traffic**
 - ▣ Provide truck climbing lanes for slower moving vehicles
- **TDM/Transit**
 - ▣ Add additional park and ride facilities
 - ▣ Support transit within the corridor
- **Communication and coordination**
 - ▣ Work with VDOT & DRPT to coordinate planning

Draft Recommendations

Recommendations

- Draft recommendations identified by working group and local planning staff
- Recommendations address issues identified during the deficiency analyses and from other plans, studies or reports
- Recommendations fall into 3 categories
 - ▣ Bike and Pedestrian
 - ▣ Capacity and Operations
 - ▣ Safety
- Recommendations are either specific (x intersection) or general (develop a communications plan)

Draft Recommendations

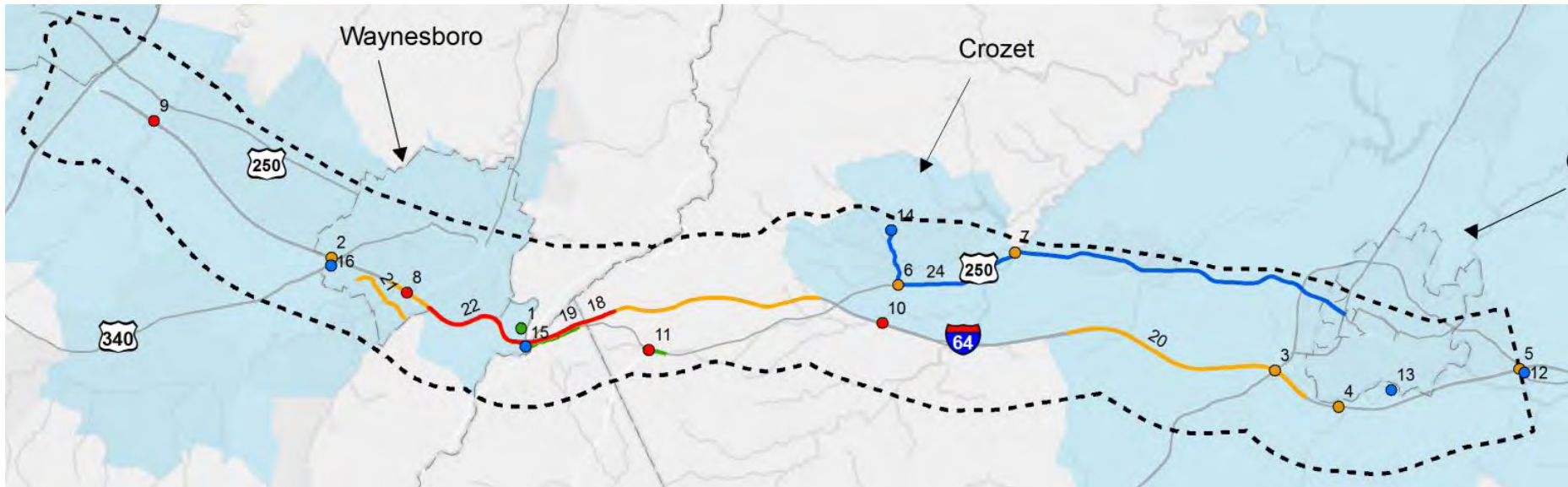
Type	Recommendation	Topic Addressed	Project ID
BP	Connect Route 76 to Blue Ridge Tunnel Access	Recreation	1
BP	Waynesboro to Western portal of Blue Ridge tunnel access	Recreation	1
BP	Widen paved shoulders on US-250 from Old TPK Rd to Brooksville Rd.	Safety	17
BP	Widen shoulders on US250 from Afton to Route 6	Safety	18
C&O	Interchange improvements at Exit 94	Congestion	2
C&O	Interchange improvements at Exit 118	Congestion	3
C&O	Interchange improvements at Exit 120	Congestion	4
C&O	Interchange improvements at Exit 124	Congestion	5
C&O	Improvements to the intersection of Miller School Road/US 250	Safety	6
C&O	Route 240 /US 250 intersection improvements	Safety	7
C&O	US 250 Crozet intersection realignment (Rockfish Gap Turnpike and Three Notche'd Rd)	Safety	7
C&O	complete implementation of ATSMS system in Afton	Congestion	19
C&O	Truck climbing lanes westbound between MM 104 & 99	Congestion	20
C&O	Truck climbing lanes between MM 113&119 both direc	Congestion	21

Draft Recommendations

Type	Recommendation	Topic Addressed	Project ID
C&O	Waynesboro Southern Corridor (Route 340 to intersection of Route 624)	Congestion	22
S	Wildlife exclusion fencing South River Bridge	Safety	8
S	Wildlife exclusion fencing Christians Creek Bridge	Safety	9
S	Wildlife exclusion fencing Stockton Creek Bridge	Safety	10
S	Intersection improvements at US 250 and Route 151	Safety	11
S	Additional emergency crossovers around Afton mountain	Safety	24
TDM	New park and ride lot at Exit 124	Congestion	12
TDM	New park and ride lot at Exit 121	Congestion	13
TDM	New park and ride lot at Exit 107 (Crozet)	Congestion	14
TDM	New Park and Ride lot at Exit 99	Congestion	15
TDM	Park and Ride lot improvements at Exit 94	Congestion	16
TDM	Crozet commuter transit service	Congestion	25
TDM	I-81/I-64 Inter-Regional transit service	Congestion	24

Draft Recommendations

- Project recommendations sourced from studies, working group input and from deficiency analyses.
- Recommendations include bike ped improvements, congestion mitigation and TDM



Draft Recommendations

Type	Recommendation	Topic Addressed
C&O	Widen I 64 to three travel lanes each direction	Congestion
C&O	Lifecore drive corridor	Congestion
C&O	US 250 access management plan from Waynesboro to Staunton	Congestion
S	Greater driver information signage usage	Safety
S	App based weather and roadway condition notifications for drivers	Safety
S	Signage warning about sun blindness at key locations east and west bound	Safety
S	Afton incident management plan and communications upgrades	Safety
S	Detour plan for I 64 between MM 107 and 94	Safety

Vehicle Wildlife Conflict Hotspots

- ❑ Crashes involving wildlife are the number 1 source of accidents in the corridor.
- ❑ These crashes can be reduced or eliminated through low cost solutions
- ❑ Increased habitat connectivity

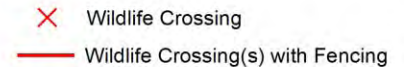
Animal Carcass Density



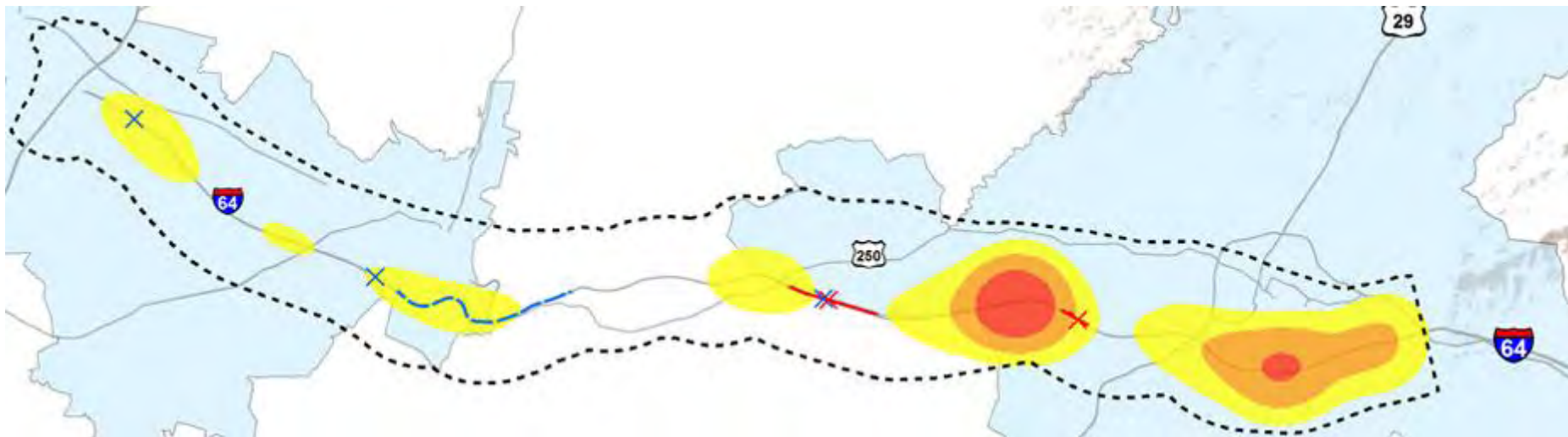
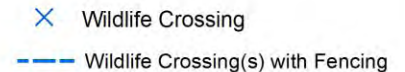
Focus_Area_Updated

MPOs

Existing



Potential



Park and Ride Lots

- Additional park and ride lots in the corridor would help reduce roadway volume and provide options for travelers
- Eventually park and ride lots could be linked with transit service



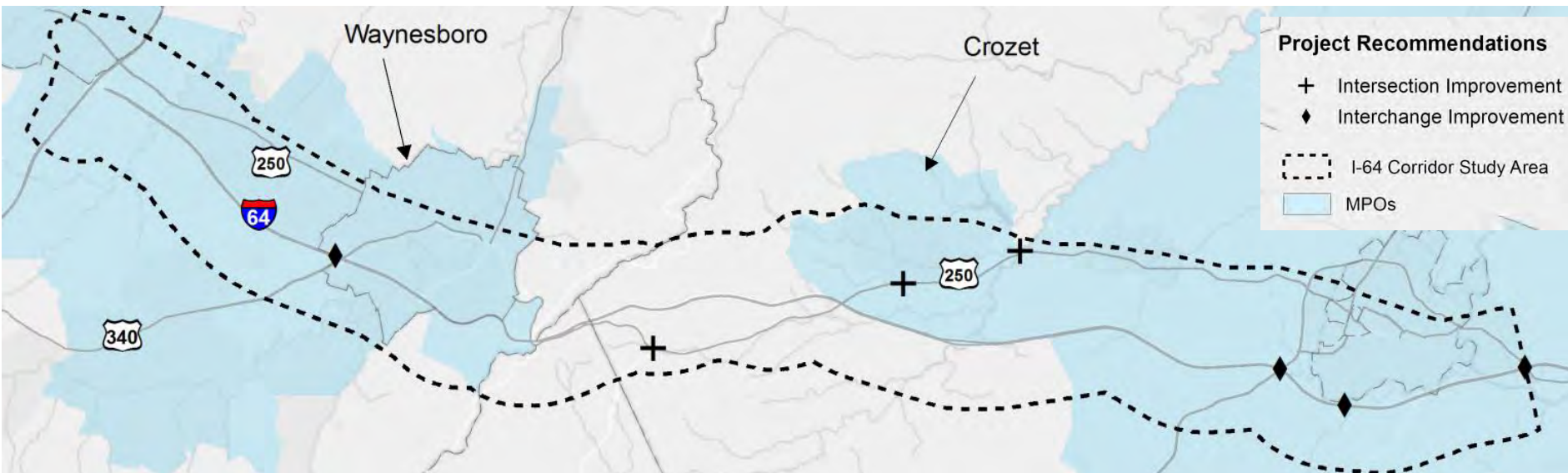
Truck Climbing Lanes

- Continue to monitor traffic and accidents and congestion at MM 105-99 (W) and 114-118 (E & W)
- Explore temporary or interim solutions such as shoulder running lanes or extended weave lanes



Interchanges & Intersections

- Implement specific interchange improvements along I-64 to add capacity, enhance safety, and reduce cut through truck traffic
- Implement intersection improvements consistent with local government visions at key locations along US 250 and other primary roadways



Next Steps

Next Steps

- Provide a draft to the working group by late October
- Comments from working group by mid-November
- Finalize plan by December
- Submit at least one corridor related project for Smart Scale Round 3 (Spring 2019)

Lessons Learned

Lessons Learned

- ❑ To collaborate effectively between regions you must communicate early and often.
- ❑ Focus on shared problems and challenges.
- ❑ Understand behavior in the corridor as a whole.
- ❑ Involve all relevant agencies in discussions.
- ❑ Focus on cost effective solutions that improve overall corridor efficiency.
- ❑ No one size fits all approach or solution. Guidance like PlanWorks must be flexible.

QUESTIONS

