Virginia Interstate 81 Corridor Overview

Jeff Lineberry, PE
Transportation Land Use Director

Terry R. Short, Jr.
District Planning Manager
Interstate 81

I-81 Corridor Significance

- 11.7 million trucks/year
- $312 billion in goods/year
- 42% of statewide truck traffic
- 1,259 average incidents per year (FY13-FY17)
- 30 crashes/year (with clearance times greater than 6 hours)
Interstate 81 in Virginia

- 48 MILES OF I-81 HAVE GRADES GREATER THAN 3%
- TRUCKS MAKE UP 20-30% OF THE TRAFFIC VOLUMES ON SOME SECTIONS OF I-81
- LOSS OF ONE LANE OF I-81 CAUSES A 65% REDUCTION IN HIGHWAY CAPACITY

30
Higher Education Institutions

6
Metropolitan Areas
### Primary Truck Routes

Transearch data quantifies Virginia’s strong dependence on two primary truck routes: I-81 and I-95.

<table>
<thead>
<tr>
<th></th>
<th>Total Trucks</th>
<th>Freight Value</th>
<th>Truck VMT</th>
</tr>
</thead>
<tbody>
<tr>
<td>I-81</td>
<td>11.7 million units</td>
<td>$312 billion of freight</td>
<td>1.2 billion truck VMT</td>
</tr>
<tr>
<td>I-95</td>
<td>9.0 million units</td>
<td>$195 billion of freight</td>
<td>598 million truck VMT</td>
</tr>
</tbody>
</table>

Source: Parsons Brinckerhoff analysis of Commonwealth of Virginia Transearch Data
Impact of Trucks and Terrain

The effect of uphill grade on trucks

- Level (<2% grade)
- Rolling (2-3% grade)
- Mountain (3+% grade)

---

VDOT
AADT* - is the total volume of vehicle traffic of a highway or road for a year divided by 365 days.

**ADT (Average Daily Traffic ) - the average 24 hour volume, being the total volume during a stated period divided by the number of days in that period. Normally, this would be periodic daily traffic volumes over several days, not adjusted for days of the week or seasons of the year.

### Traffic Volume Trends

<table>
<thead>
<tr>
<th>Year</th>
<th>81</th>
<th>Raphine</th>
<th>% Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>41000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2009</td>
<td>41500</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2010</td>
<td>42000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2011</td>
<td>41500</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2012</td>
<td>41000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2013</td>
<td>40500</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2014</td>
<td>41000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2015</td>
<td>41500</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2016</td>
<td>42000</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### ADT**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th>ADT</th>
<th>% Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>June 2016</td>
<td>52700</td>
<td></td>
<td></td>
</tr>
<tr>
<td>June 2017</td>
<td>53900</td>
<td>2.3</td>
<td></td>
</tr>
</tbody>
</table>
AADT* - is the total volume of vehicle traffic of a highway or road for a year divided by 365 days.

**ADT (Average Daily Traffic) - the average 24 hour volume, being the total volume during a stated period divided by the number of days in that period. Normally, this would be periodic daily traffic volumes over several days, not adjusted for days of the week or seasons of the year.

### Traffic Volume Trends

<table>
<thead>
<tr>
<th>Year</th>
<th>AADT* (81 Harrisonburg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>47000</td>
</tr>
<tr>
<td>2009</td>
<td>48000</td>
</tr>
<tr>
<td>2010</td>
<td>49000</td>
</tr>
<tr>
<td>2011</td>
<td>50000</td>
</tr>
<tr>
<td>2012</td>
<td>51000</td>
</tr>
<tr>
<td>2013</td>
<td>52000</td>
</tr>
<tr>
<td>2014</td>
<td>53000</td>
</tr>
<tr>
<td>2015</td>
<td>54000</td>
</tr>
<tr>
<td>2016</td>
<td>55000</td>
</tr>
</tbody>
</table>

**Increase:**
- 2008 to 2009: +2.5%
- 2009 to 2010: +4.3%
- 2010 to 2011: +4.4%

### ADT**

<table>
<thead>
<tr>
<th></th>
<th>81</th>
<th>Harrisonburg</th>
</tr>
</thead>
<tbody>
<tr>
<td>June 2016</td>
<td>60600</td>
<td></td>
</tr>
<tr>
<td>June 2017</td>
<td>62000</td>
<td>2.3</td>
</tr>
</tbody>
</table>

*VDOT*
*AADT (Annual Average Daily Traffic) - is the total volume of vehicle traffic of a highway or road for a year divided by 365 days.

**ADT (Average Daily Traffic) - the average 24 hour volume, being the total volume during a stated period divided by the number of days in that period. Normally, this would be periodic daily traffic volumes over several days, not adjusted for days of the week or seasons of the year.

<table>
<thead>
<tr>
<th></th>
<th>81</th>
<th>Winchester</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADT</td>
<td></td>
<td></td>
</tr>
<tr>
<td>June 2016</td>
<td>72100</td>
<td>+1.6%</td>
</tr>
<tr>
<td>June 2017</td>
<td>73800</td>
<td>+5.2%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>+2.4%</td>
</tr>
</tbody>
</table>

Traffic Volume Trends

81 Winchester

AADT*
Traffic Volume Trends

I-81 Staunton Area

**AADT** (Annual Average Daily Traffic) - is the total volume of vehicle traffic of a highway or road for a year divided by 365 days.

*2002-2016 Growth: +3.5%*
Impact of Incidents

I-81 NB Crash MP 112 Salem – June 20, 2015

• Beginning at 7:28am
• Incident involving tractor-trailer
• Duration: 12 hours
• Est. queue length: 8 miles
• Vehicle hours of delay: 16,355
• Est. delay cost: $612,000
Incident Trends – I-81 North

- Number of Incidents on I-81 N from TN state line to WV state line
- Number of Incidents on I-81 N in Staunton District

Includes all crashes and disabled vehicles that impact one or more travel lanes.
Incident Trends – I-81 South

- Number of Incidents on I-81 S from TN state line to WV state line
- Number of Incidents on I-81 S in Staunton District

Fiscal Year

Includes all crashes and disabled vehicles that impact one or more travel lanes
### Incident Trends

<table>
<thead>
<tr>
<th></th>
<th>FY13-FY17 average duration (min)</th>
<th>FY13-FY17 # incidents</th>
<th>FY13-FY17 #&gt;1 hr incidents</th>
<th>FY13-FY17 #&gt;2 hr incidents</th>
<th>FY13-FY17 #&gt;4 hr incidents</th>
<th>2016 AADT</th>
<th>FY13-FY17 Average Annual VDH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum</td>
<td>45</td>
<td>17</td>
<td>10</td>
<td>3</td>
<td>0</td>
<td>12,000</td>
<td>238</td>
</tr>
<tr>
<td>Maximum</td>
<td>134</td>
<td>280</td>
<td>106</td>
<td>29</td>
<td>14</td>
<td>30,833</td>
<td>52,402</td>
</tr>
<tr>
<td>Average</td>
<td>70</td>
<td>95</td>
<td>35</td>
<td>11</td>
<td>4</td>
<td>22,993</td>
<td>16,503</td>
</tr>
</tbody>
</table>

**Notes:**

- **Average Duration**: Average incident duration within each mm group from the start of incident until travel lanes were clear.
- **# Incidents**: The number of crashes and disabled vehicles that impacted one or more travel lanes within each mm group.
- **2016 AADT**: Calendar year 2016 Average Annual Daily Traffic count for the corresponding mm group.
- **Average Annual VHD**: The average annual vehicle-hours of delay due to all events (incidents, weather, work zones, other congestion).
Common Recovery Issues
Incident Management Omnibus Bill

Background

- Over 24 million vehicle hours of delay occurred in FY16 on Virginia’s interstates alone
- A national estimate states that roadway incidents contribute to 25% of congestion
- The Incident Management Omnibus Bill offers low cost solutions to reduce incident durations

Purpose

Improve traffic incident response and management by updating five sections of the Code of Virginia (46.2-808, 46.2-920.1, 46.2-888, 46.2-1210 and 46.2-1212.1) to:

- Shorten the response times to incidents
- Reduce lane closure times due to an incident
- Reduce the impact highway incidents have on public safety, responder safety, and our economy
Funding & Projects On the Way

• Smart Scale for Round 2: $1 billion available- $358.9 million for District Grant Program (27.5%) and $658.8 million for High Priority Projects (27.5%) with 436 applications requesting $9.96 B billion.

• Funds programmed for FY18- FY23 SYIP (Round 1 and 2 excludes Round 1- FY17 funding) to HB 1887 (fully implemented 2021): $3.26 billion
  • District Grant- $1.1 billion statewide with $86.7 M (7.8%) for Staunton District
  • High Priority- $1.05 billion statewide with $51.9 M for Staunton District
  • State of Good Repair (pavement & bridge)- $1.14 billion (45%) statewide with $88.9 M (7.9%) for Staunton District.
  • Statewide total $3.26 B and Staunton District total $227.5 M

• Staunton District Smart Scale:
  • Round 1 -29 applications with 18 projects funded at $106 million: $69 M District Grant & $37 M High Priority allocated.
  • Round 2- 45 applications requesting $562 M with 20 projects funded at $41 million: $24 M District Grant (DG) and $16.4 M High Priority allocated with one funded with $573,000 with safety funding. Plus additional $7.7 M of DG for unpaved roads.
I-81 Projects Overview
Staunton District

Summary of Project Costs

- Smart Scale FY17 Funded
  Exit 222 Extension of NB Acceleration & SB Deceleration Lanes ($2.05M)

- Smart Scale FY17 Funded
  Exit 220 Extension of All Acceleration/Deceleration Lanes & Exit 221 Extension of SB Acceleration Lane ($5.61M)

- Smart Scale FY17 Funded
  Exit 213 Extension of NB & SB Acceleration Lanes & Relocation of Crossovers ($1.57M)

$9.23M Committed/Funded

FASTLANE Grant Application
Staunton District Construction Projects (see ***)

Corridor-Wide Strategies
- Freight Safety Service Patrol (SSP)
- Innovative Incident Response (drones/apps)
- Towing Response Incentive Program (TRIP)
- Instant Tow Dispatch
- Truck Parking Management System

***
• $10 to $15 Million per direction (per mile) to add one lane with wide shoulders
• $30-$50 Million (per interchange)
• There are lots of variables that affect cost
  – # of bridges
  – Right of way cost
  – Cross street improvements (Local Road network)
  – Etc.
INFRA Grants:

• Infrastructure for Rebuilding America
• Announced in Federal Register on June 29, 2017 and replaces FASTLANE grant program.
• Large project submissions in FASTLANE program not scored but can be resubmitted under INFRA.
• Approximately $1.5 B in funding available.
• Application deadline is 8:00 PM EST, November 2, 2017.
• VDOT plans to submit an I-81 application under the new INFRA program, building on last year’s I-81 FASTLANE application.
Questions?