I-81 Corridor Improvement Plan - Update

Deputy Secretary Nick Donohue
Commonwealth Transportation Board
September 17, 2018
I-81 Corridor Improvement Plan

• Evaluated all 325 miles to determine top problem locations
  – Crash frequency
  – Crash severity
  – Person hours of delay
  – Incidents with lane closures > 1 hour
I-81 Public Involvement Summary

- June meeting attendance: 399
- June series of meetings- comment forms, email, and phone: 403
- Public meeting map display comments: 680
- Public comment period closed August 6, 2018
- Comments focused on safety, congestion issues- also many concerns about enforcement

- August meeting attendance: 260
- August series of meetings- comment forms, email and phone: ~200
- Webmap comments: ~50
- Comment period closes September 30, 2018
- Comments have focused on operations, enforcement, revenue generation and specific capital improvements
I-81 Corridor Operations Plan
Delay Makes I-81 Unique

[Diagram showing percentage breakdown of incidents for All VA Interstates and Interstate 81, with recurring incidents being a significant portion for both.]
Potential Solutions Development
Operations and Incident Management Improvements

- Focused on corridor segments with the highest incident-related delay
- Identified crash hotspots
- Developed corridor-wide operations and incident management upgrade plan

Delay Per Mile Due to 1+ Hr Lane-Impacting Incidents 2016-2017
I-81 Corridor Operations Plan

Key components include—

• Changeable message signs and cameras
• Expanded safety service patrols
• Detour routes and improvements to parallel facilities
• Contract emergency clearance
• Truck parking enhancements
Operations Improvements
Cameras and Changeable Message Signs (CMS)

• Cameras (eyes on the road)
  – Detect incidents faster

• CMS (communicate with you)
  – Inform motorists in real-time
  – Provide information in advance of major incidents
  – Alternative route, travel time

Detecting incidents, communicating information in real-time, allowing you to make informed decisions—a coordinated approach that keeps you moving
Operations Improvements
Safety Service Patrols (SSP)

• Safety vehicles that cover the interstate with services to stranded motorists

• Benefits
  – Actively seeking events
  – Often first to arrive
  – Can move fender benders from travel lane
  – Call appropriate resources and start on-site traffic control
Operations Improvements
Parallel Facilities

• Why is upgrading parallel facilities important for I-81?
  – Keeps you moving when there is an incident
  – Provides you with an alternative route
  – Helps you get around the incident
  – Helps you avoid back-ups

• Includes:
  – Incident management plans
  – Traffic signal operations and communications
  – Changeable message signs (CMS)
  – Geometric improvements
  – Bridge improvements
  – Signs and pavement marking
Example Incident Management Plan
Operations Improvements: Parallel Facilities

Sample detour plan for incident between Exit 222 and Exit 225

- **Message Signs**
  Inform the public of a change in traffic patterns during an incident

- **Traffic Control Personnel**
  Provide manual control of intersections during an incident

- **Traffic Signal Operations**
  Provides remote capabilities to the traffic signal to adapt to incident traffic patterns
Example Incident Management Scenario
Operations Improvements: Parallel Facilities

- 4 hour full closure + 4 hours single-lane closure
- Detour route: US Route 262 (1 traffic signal)

Improvements
- New cameras
- New message signs
- Communications
- Traffic signal upgrades

<table>
<thead>
<tr>
<th>Scenario</th>
<th>I-81 Queue Length (mi)</th>
<th>I-81 Travel Time (min)</th>
<th>Route 262 Travel Time (min)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No incident</td>
<td></td>
<td></td>
<td>15</td>
</tr>
<tr>
<td>Incident with no Improvements</td>
<td>17.1</td>
<td>186</td>
<td>28</td>
</tr>
<tr>
<td>Incident with Improvements</td>
<td>9.2</td>
<td>141</td>
<td>19</td>
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</tbody>
</table>
Operations Improvements
Contract Emergency Clearance

- Dedicated response time
- Dedicated clearance services with proper equipment
- Safely moves large vehicles out of travel lane
- Reduces incident duration for complicated events
- Gets traffic moving again

With this program in place, a four-hour incident could be reduced to three hours
Operations Improvements
Truck Parking Solutions

• Strategic locations for truck parking
• Real-time truck parking information
• Reduce impacts of trucks parking on shoulders and ramps
• Benefits
  – Provides safe spaces for truck parking
  – Enhances corridor safety for all users
  – Assists truckers with complying with hours of service regulations

63% of truck drivers spend over 15 minutes looking for parking between 4PM and midnight; many stop driving nearly an hour early to secure a safe spot to park
Potential Capital Projects

- Reviewed each problem area identified by performance measures
- Determined contributing factors
- Developed potential solutions based identified contributing factors

### Contributing Factors

- Traffic Volume
- Grade
- Curve
- Ramp Spacing
- Merge/Diverge Area
Potential Capital Projects

• Types of Solutions
  – Widening
    – Third through lane
    – Auxiliary lane
    – Truck climbing lane
  – Acceleration and deceleration lane extensions
  – Curve improvements
  – Interchange improvements
    – Ramp modifications
    – Ramp intersection improvements
Potential Capital Projects - Note

- Some of the top problem areas cannot be addressed with infrastructure solutions
- Over 850 fatal and severe injury crashes between 2012-2016 reviewed on the I-81 corridor

Example:
MM 109 - Northbound

1. Drunk driver and a driver with a diabetic emergency
2. A driver struck a maintenance worker clearing roadway debris

2 Severe Injury Crashes
## Potential Projects Summary

<table>
<thead>
<tr>
<th>District</th>
<th>Widening</th>
<th>Truck Climbing Lanes</th>
<th>Auxiliary Lanes</th>
<th>Acceleration Lane Ext.</th>
<th>Deceleration Lane Ext.</th>
<th>Curve Improvement</th>
<th>Shoulder Widening</th>
<th>Interchange</th>
<th>Number of Improvements</th>
<th>Number of corridor miles</th>
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</thead>
<tbody>
<tr>
<td>Bristol</td>
<td>1</td>
<td>0</td>
<td>3</td>
<td>6</td>
<td>8</td>
<td>4</td>
<td>0</td>
<td>1</td>
<td>23</td>
<td>15.8</td>
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<tr>
<td>Salem</td>
<td>7</td>
<td>1</td>
<td>5</td>
<td>10</td>
<td>5</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>33</td>
<td>87.3</td>
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<tr>
<td>Staunton</td>
<td>9</td>
<td>2</td>
<td>7</td>
<td>12</td>
<td>12</td>
<td>1</td>
<td>3</td>
<td>0</td>
<td>46</td>
<td>74.8</td>
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<tr>
<td><strong>Total Improvements</strong></td>
<td><strong>17</strong></td>
<td><strong>3</strong></td>
<td><strong>15</strong></td>
<td><strong>28</strong></td>
<td><strong>25</strong></td>
<td><strong>8</strong></td>
<td><strong>3</strong></td>
<td><strong>1</strong></td>
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<tr>
<td><strong>Total Corridor Miles</strong></td>
<td><strong>100.5</strong></td>
<td><strong>8</strong></td>
<td><strong>20</strong></td>
<td><strong>14.8</strong></td>
<td><strong>4.7</strong></td>
<td><strong>14</strong></td>
<td><strong>13</strong></td>
<td><strong>2.5</strong></td>
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</table>
Potential Projects Development

• Estimated cost corridor-wide ~$3.3 billion
  – $500M in the Bristol District
  – $1.6B in the Salem District
  – $1.2B in the Staunton District

• Potential projects will be prioritized based on their congestion, safety, and accessibility benefits relative to cost
## Major Interstate Corridor Funding
### SMART SCALE vs. Other Resources

<table>
<thead>
<tr>
<th>Interstate</th>
<th>SMART SCALE</th>
<th>Regional/Tolls/Other</th>
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</thead>
<tbody>
<tr>
<td>I-64</td>
<td>$397</td>
<td>$1,179</td>
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<tr>
<td>I-66</td>
<td>0</td>
<td>$2,680</td>
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<tr>
<td>I-77</td>
<td>$5</td>
<td>0</td>
</tr>
<tr>
<td>I-81</td>
<td>$168</td>
<td>0</td>
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<tr>
<td>I-85</td>
<td>0</td>
<td>0</td>
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<tr>
<td>I-95/I-395</td>
<td>$220</td>
<td>$940</td>
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</table>

Figures in millions
Potential Funding Options

• Heavy commercial vehicle tolling options –
  - $50-$200M/year
• Regional 2.1% motor fuels tax –
  – $60-$70M/year
• Regional 0.7% retail sales and use tax –
  – $90-$100M/year
• Regional taxes would impact all localities in PDCs 3, 4, 5, 6, 7

All funding options require General Assembly legislation
Potential Funding Options

- Regions impacted by a potential motor fuels or retail sales and use tax for I-81 Corridor
Tolling and Potential Tolling Revenue

• What is open road tolling?
  – Collect tolls without using a toll booth
  – Heavy commercial trucks

• Who approves tolling process?
  – Virginia Legislature
  – Federal Highway Administration

*Toll revenues may only be used to benefit the corridor on which they were collected.*
Next Steps

• October Public Meetings throughout the Corridor

• Commonwealth Transportation Board briefing on draft plan at its October meeting

• Commonwealth Transportation Board consideration of final plan at its December meeting

• Plan to be submitted to the General Assembly no later than the first day of the 2019 Session
Providing Feedback…VA81Corridor.org

Project website: http://www.VA81Corridor.org

Project e-mail address: VA81CorridorPlan@OIPI.Virginia.gov