

**ATTACHMENT A**

**FINAL REPORT: LIST OF CORRIDOR PROJECTS ALONG  
THE INTERSTATE 81 TO ADDRESS SAFETY AND  
CONGESTION**

**Pursuant to:**

**Item 427 L of Chapter 2, 2014 Acts of the Assembly (Special Session I)**

**Commonwealth Transportation Board  
and  
Virginia Department of Transportation**

## Table of Contents

<b>Executive Summary</b> .....	<b>iii</b>
Findings.....	iv
<b>Introduction</b> .....	<b>1</b>
<b>Study Area</b> .....	<b>1</b>
<b>Process for Developing Project List(s)</b> .....	<b>2</b>
Bridge .....	2
Capacity .....	2
Pavement.....	3
Safety .....	3
Findings .....	3
<b>Appendix A- Budget Amendment Item 427 L</b> .....	<b>6</b>
<b>Appendix B -Item 427 Candidate Project List</b> .....	<b>7</b>
<b>Appendix C - Item 427 HB2 Projects Submitted (September 30, 2015 Deadline)</b> .....	<b>19</b>

## Executive Summary

Pursuant to Item 427 L 1 and 2 (Item 427 L) of the 2014 Appropriation Act, the Commonwealth Transportation Board (CTB) was required to direct the Virginia Department of Transportation's (VDOT) Bristol, Salem and Staunton districts to identify projects along the I-81 corridor in Virginia that address safety and congestion concerns as part a statewide prioritization process pursuant to § 33.1-23.5:<sup>1</sup> of the *Code of Virginia* (See Appendix A). Item 427 L further requires the CTB to solicit input from local elected officials, state legislators, and other affected stakeholders in the identification of potential candidate projects for evaluation. The CTB is to give priority to projects that minimize the impacts on adjacent communities, such as historic battlefields, and to projects that can be implemented within the existing right-of-way or with minimal additional right-of-way.

An interim report including a list of safety and congestion projects and estimated costs from the FY 15-20 Six Year Improvement Program was completed in November 2014 and provided to members of the Virginia General Assembly in December 2014. This final report, required by Item 427 L, contains a list of projects developed using factors described in the report.

In April 2015, the VDOT Bristol, Salem and Staunton District Offices developed a candidate project list that contained 105 recommendations totaling approximately \$6 billion. Subsequently, a series of four meetings was held throughout the corridor for the purpose of obtaining input from local elected officials, state legislators and other affected stakeholders relating to issues and deficiencies along the corridor. These meetings commenced in June of 2015, with the first being hosted by the Secretary of Transportation, and culminated with a final meeting in September.

The 105 project list was later revised, utilizing factors further described in this report, to a list of 41 smaller break-out projects totaling approximately \$1.5 billion. VDOT District staff coordinated with the MPOs, PDCs, and local governments along the I-81 Corridor while developing these 41 candidate projects. Project categories included:

- Bridges / Structures
- Acceleration / Deceleration
- Interchange Modifications
- Intelligent Transportation Systems (ITS)
- Pavement Reconstruction
- Safety

---

<sup>1</sup> Section 33.1-23.5:5 was enacted into law pursuant to HB2 of the 2014 General Assembly. As a result of legislation recodifying, among others, Title 33.1, §33.1-23.5:5 was recodified as §33.2-214.1, effective October 1, 2014.

- Mainline Widening
- Truck Climbing Lanes

The list of projects was shared with the Metropolitan Planning Organizations (MPOs), Planning District Commissions (PDCs), and localities for consideration as part of the HB2 application submittal process for potential inclusion in the Six Year Improvement Program to be adopted by the CTB in June 2016. This list of projects has been presented and reviewed by State Legislators, MPOs, PDCs, and localities along the I-81 corridor. Their comments and their cost adjustments were taken into consideration in preparing the list as set out in Appendix B.

Also, a list of the final candidate HB2 projects submitted by the September 30, 2015, deadline by the eligible stakeholders has been provided in Appendix C. A total of fourteen I-81 candidate projects were submitted corridor-wide under the HB2 process with an estimated value of \$492 million. Due to the mandate of Item 427 L1-2 (Item 427 L) of Chapter 2 of the 2014 Acts of Assembly (Special Session I), that a final report be submitted by January 1, 2016, the results of the screening and scoring are not included in this report as the HB2 screening and scoring is not anticipated to be completed until sometime in January 2016.

### Findings

Along 325 miles of Interstate 81 in Virginia from West Virginia to Tennessee, a total of forty-one projects were identified for purposes of this report. Many of the projects can be broken into smaller projects of independent utility or are a subset of a larger mainline widening or interchange project.

VDOT maintains a list of Statewide Transportation Planning recommendations and that list will be updated with the projects in this report as appropriate.

A summary of the total number of projects being recommended as potential candidate projects in each category with low and high cost ranges is included in the table below:

Category	Total No. Projects ( I-81 Corridor)	Total Cost Range (Corridor)(Millions)(Rounded)	
		<i>Low</i>	<i>High</i>
Bridge	8	173	254
Capacity – Widening	5	380	581
Capacity - Interchange Modification	5	187	286
Pavement	10	222	342
Safety	10	197	302
Safety / ITS	3	7	11
<b>TOTALS</b>	<b>41</b>	<b>1,166</b>	<b>1,776</b>

## **Introduction**

The Commonwealth Transportation Board (CTB) is required by Item 427 L of the 2014 Appropriation Act to direct VDOT's Salem, Bristol and Staunton district staff to develop a prioritized list of congestion relief and safety improvement projects along the I-81 corridor as part of the statewide prioritization process pursuant to § 33.1-23.5:5 of the *Code of Virginia*<sup>2</sup> (HB2, 2014). Item 427 L further requires the CTB to solicit input from local elected officials, state legislators, and other affected stakeholders in the identification of potential candidate projects for evaluation. Further, the CTB is to give priority to projects that minimize the impacts on adjacent communities, including historic battlefields, and to projects that can be implemented within the existing right-of-way or with minimal additional right-of-way.

Pursuant to Item 427 L, a final list of projects must be developed pursuant to the provisions of HB 2, 2014 Session of the General Assembly,) and must list the prioritized candidate projects identified for potential inclusion in the SYIP to be adopted by the CTB in June 2016. Given that project prioritizations under the HB2 prioritization process are currently in progress, the results of the HB2 analysis and prioritization were not available for publication of this report but will be considered for purposes of the final list of projects that must be developed pursuant to Item 427 L. The prioritized list of potential candidate projects from this document will be available by June 2016.

This report constitutes the final report required by Item 427 L and provides a list of projects (included in Appendix B) derived from analysis conducted by VDOT's Bristol, Salem and Staunton District Offices. Meetings were held in each of the three VDOT districts along the I-81 corridor where State Legislators, Metropolitan Planning Organizations (MPO), Planning District Commissions (PDC), and localities were given the opportunity to review and comment on the potential candidate projects.

## **Study Area**

The study area includes 325 miles of Interstate 81, beginning at the Tennessee/Virginia State Line and continuing to the West Virginia/Virginia state line. Within the study area are 90 interchanges including connections with I-66, I-64, I-581, I-77 and I-381. Overall corridor traffic averages 48,000 vehicles per day (vpd), with almost 67,000 vpd near Roanoke. Originally, I-81 was designed for 15% truck traffic. Data shows the roadway currently carries an average of 18% trucks, and up to 33% on some sections.<sup>3</sup> In Virginia, I-81 traverses rolling and mountainous topography. The up-and-

---

<sup>2</sup> Id.

<sup>3</sup> VDOT's Traffic Engineering Division and Transportation & Mobility Planning Division Databases

down terrain complicates traffic flow. Maintaining consistent speeds is challenging due to the topography and the high volume of heavy vehicles such as trucks, RVs and horse trailers. People using I-81 in Virginia include commercial drivers, commuters, tourists, through travelers, and many college students. Twenty-nine colleges and universities are located along the I-81 corridor.

### **Process for Developing Project List(s)**

VDOT's Bristol, Salem, and Staunton District offices developed a candidate project list in April 2015 examining the I-81 corridor. The list initially contained 105 recommendations totaling approximately \$6 billion which was later refined, utilizing the various factors described herein, resulting in a list of 41 smaller break-out projects totaling approximately \$1.5 billion. The I-81 corridor was analyzed using available performance data for capacity, safety, bridge and pavement deficiencies. The analysis processes and performance measures for each of the categories are outlined below.

#### **Bridge**

For purposes of this report, the Bridge category only considers mainline bridges, while other bridge improvement recommendations (interchange overpasses/underpasses) are included in the capacity category where interchanges are impacted. A total of eight bridge projects (**15 separate bridge structures**) are being recommended as the top structures warranting further consideration in the corridor, based on their deck ratings, superstructure ratings, substructure ratings and their structurally deficient/functionally obsolete status. Some of the bridge structures are already included in the Six-Year Improvement program and are partially funded as indicated in Appendix B.

#### **Capacity**

Potential capacity improvements were classified into two categories: Interchange Modification and Mainline Widening. Different metrics were used to prioritize the interchange modification and mainline widening projects resulting in two subcategories for capacity recommendations

*The Capacity – Interchange Modification* subcategory was scored with points being assigned to metrics based on:

- population density within a three mile radius of the interchange,
- traffic volume to capacity ratios,
- bridge sufficiency rating,

- bridge structurally deficient or functionally obsolete,
- designated technology zones,
- designated business incubator sites,
- designated enterprise zones,
- future year (2040) traffic volumes on I-81 and intersecting route, and
- major freight generating facilities adjacent to the interchange.

*The Capacity – Widening* category was scored on the average traffic density of the section under consideration.

### Pavement

The Pavement Category used a measure to prioritize pavement conditions requiring a reconstruction effort. A Modified Structural Index (MSI) index number < 1 represents a section with an inadequate pavement structure. A total of ten projects were recommended for pavement reconstruction.

### Safety

The Safety category was based on an evaluation of existing safety conditions of the area or facility to be improved by using the average of the ranking for Fatal + Injury Accidents and the ranking for Fatal+Injury Accidents/100 million Vehicle Miles Traveled. A total of ten projects were recommended for safety improvements.

### Findings

A total of forty-one projects were identified along the 325 miles of Interstate 81 in Virginia for inclusion in the list of candidate projects to be considered for the Six Year Program to be adopted by the CTB in June 2016. Many of the projects can be broken into smaller projects of independent utility or are a subset of a larger mainline widening or interchange projects. Although the candidate project list contains projects that may not qualify for HB2 funding, other sources of funding maybe available such as:

- State of Good Repair
- Open Container Safety Funds
- Revenue Sharing
- Asset Management
- Regional Revenues
- CMAQ Federal Funds
- Highway Safety Federal Funds
- Transportation Alternative Funding

VDOT maintains a list of Statewide Transportation Planning recommendations and that list will be updated with the projects in this report as appropriate.

A summary of the total number of projects being recommended as candidate projects in each category and associated cost ranges is included in the table below:

Category	Total No. Projects ( I-81 Corridor)	Total Cost Range (Corridor)(Millions)(Rounded)	
		<i>Low</i>	<i>High</i>
<b>Bridge</b>	8	173	254
<b>Capacity – Widening</b>	5	380	581
<b>Capacity - Interchange Modification</b>	5	187	286
<b>Pavement</b>	10	222	342
<b>Safety</b>	10	197	302
<b>Safety / ITS</b>	3	7	11
<b>TOTALS</b>		<b>1,166</b>	<b>1,776</b>

The complete candidate projects list by project type is provided in Appendix B.

VDOT solicited input from local elected officials, state legislators, and other affected stakeholders through a series of meetings that were held along the corridor. The corridor wide meeting that was held at VMI gave the attendees an overview of HB2 and an overview of deficiencies along the I-81 corridor. Additional meetings that were held in each of the districts provided a more in depth dialogue on the identified deficiencies in that specific district. Attendance at the corridor wide and regional meetings was as outlined in the table below.

Date / Region	Location	Attendees
June 30, 2015 Corridor Wide meeting— Hosted by the Secretary of Transportation	Virginia Military Institute (VMI), Lexington, VA	Members of VA General Assembly, Secretary of Transportation , CTB Members, MPOs, PDCs, Local Officials, VDOT Staff
August 10, 2015 Staunton District meeting	Blue Ridge Community College, Weyers Cave, VA	Members of VA General Assembly, CTB Members, MPOs, PDCs, Local Officials, VDOT Staff



<b>August 27, 2015</b> <b>Salem District meeting</b>	<b>VDOT Salem District Auditorium, Salem, VA</b>	<b>Members of VA General Assembly, CTB Members, MPOs, PDCs, Local Officials, VDOT Staff</b>
<b>September 10, 2015</b> <b>Bristol District meeting</b>	<b>Heartwood, Abingdon, Virginia</b>	<b>Members of VA General Assembly, CTB Members, MPOs, PDCs, Local Officials, VDOT Staff</b>

**Appendix A- Budget Amendment Item 427 L**

Secretary of Transportation (186)

Item 427.

Authority: Title 2.2, Chapter 2, Article 10, §2.2-201, and Titles 33, 46, and 58, Code of Virginia.

L. 1. The Commonwealth Transportation Board shall direct the staff of the Virginia Department of Transportation's Bristol, Salem and Staunton districts to develop a list of potential improvements to address congestion and safety concerns along the Interstate 81 corridor as a part of the statewide prioritization process enacted by the 2014 General Assembly pursuant to § 33.1-23.5:5, Code of Virginia.

2. In the identification of potential candidate projects for evaluation, the Board shall solicit input from local elected officials, state legislators, and other affected stakeholders. Further, the Board shall give priority to projects that minimize the impacts on adjacent communities, including historic battlefields, and to projects that can be implemented within the existing right-of-way or with minimal additional right-of-way. An interim report, including a listing of the identified projects and estimated costs shall be completed by November 1, 2014. By January 1, 2016, a final listing, developed pursuant to the provisions of House Bill 2, 2014 Session of the General Assembly, will list the prioritized candidate projects identified for potential inclusion in the Six Year Program adopted by the Commonwealth Transportation Board in June 2016.