



**I-81 Widening MM 136.6 to  
MM 141.8**  
Initial Financial Plan

**January 31, 2021**

State Project Number: 0081-080-946, P101, R201,  
C501, B677, B678, B681, B682, B683, B684, B685,  
B686, B687, B688  
UPC: 116203

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## 1. PROJECT DESCRIPTION

The 2018 I-81 Corridor Improvement Plan (CIP) Project IDs 39A and 39B are located along I-81 between mile markers (MM) 136.6 and 141.8 and grouped under UPC 116203. The project is located within Roanoke County and the City of Salem, as the city corporate limits straddle I-81 through this portion of the corridor. The project begins about 3,000 feet south of the I-81/Rt. 112 (Wildwood Rd.) interchange (exit 137) near the I-81 over Rt. 641 (Texas Hollow Rd.) bridges and ends about 1,800' north of the I-81/Rt. 419 (North Electric Rd.) interchange. Figure 1 shows the general geographic area of the project.



**FIGURE 1: GEOGRAPHIC AREA**

The project purpose is to provide additional capacity, reduce congestion, and improve safety and is approximately 5.2 miles. The proposed project improvements include, but are not limited to: an additional lane in both northbound and southbound directions; two bridges replaced over Wildwood Road (Route 112 – exit 137); two bridges replaced over Goodwin Avenue (Route 635); two bridges replaced over Wildwood Road (Route 619, noting that I-81 crosses Wildwood Road two times); two bridges widened at Thompson Memorial Drive (Route 311- exit 140); asphalt milling and resurfacing of existing pavement; and installation of sign structures, storm drain pipes and stormwater management facilities, and sound walls.

Interstate 81 between MM 136.6 and 141.8 is classified as Urban Interstate System (GS-INT) with a design speed of 65 MPH and a posted speed of 60 MPH. The proposed widening scheme generally follows constructing an additional lane to the outside in the southbound direction and to the median in the northbound direction. The typical section is mainly comprised of three 12' lanes and two 12' total shoulders per direction.

Originally, this project was identified as Project ID #39A (UPC 116203) and 39B (UPC 115937) in the 2018 'I-81 Corridor Improvement Plan' and intended to be delivered as separate design bid build projects. Early in the project scoping phase, the delivery method was changed to a design build for both. Additionally, both projects were combined into a single design-build procurement, under UPC 116203, due to realized design and construction advantages. VDOT determined the project delivery via design-build contracting will afford an opportunity for competition in the project's procurement and expedite completion of the improvements. VDOT has developed a conceptual design contained in the Request for Proposal (RFP) Information

Package that reflects the basic Project configuration. The Design-Builder is responsible for final design in accordance with the Contract Documents.

**Environmental Summary**

The environmental study for the project includes both the southbound and northbound lanes of I-81 between mile markers 136.6 and 141.8. The Federal Highway Administration (FHWA) concurred with a Categorical Exception (CE) level National Environmental Policy Act (NEPA) document on August 26, 2020. After public input a document reevaluation of the CE was approved by the FHWA on September 10, 2020.

**Project Website**

Additional information can be found on the Project website, which may be accessed on VDOT’s external website. <http://www.improve81.org/>

**2. SCHEDULE**

Conceptual design and project development for the I-81 Widening between MM 136.6 and 141.8 project began in February 2020. The Request for Qualifications (RFQ) was advertised on May 29, 2020. The Request for Proposals (RFP) was released October 28, 2020 with anticipated due dates for the Technical Proposals and Price Proposals both being in March 2021.

Anticipated milestone dates for the design-build contract are as follows:

- Notice of Intent to Award: March 31, 2021
- CTB Approval/Notice to Award: April 21, 2021
- Notice to Proceed: May 24, 2021
- Early Project Final Acceptance: In affect 180 days prior to Final Completion (\$4.5 million max incentive, reduced \$25,000 per day for 180 days)
- Final Completion: January 2026

**CHART 2.1 PROJECT SCHEDULE OVERVIEW**

Task		Calendar Year																											
		Start	Finish	2020				2021				2022				2023				2024				2025				2026	
				Q1	Q2	Q3	Q4	Q1	Q2																				
UPC 116203	Pre-Award Services	2/20	5/21																										
	DB Team Activities																												
	Notice to Proceed	5/24/21																											
	PE - Design	05/21	08/22																										
	RW/Utilities	10/21	01/23																										
Construction	11/21	01/26																											
Final Completion	1/23/26																											★	

### 3. PROJECT COST

The current total project cost estimate is \$292,480,260 in year-of-expenditure dollars. The estimated total project cost includes right of way and construction scope elements in addition to District pre-award costs. The project will be delivered as a design-build procurement. The estimates, as well as current expenditures for preliminary engineering (PE), right of way (RW) and construction (CN) costs are summarized by phase in the table below.

**TABLE 3.1 PROJECT COST BY PHASE**

		A	B	A-B
UPC	Phase	Estimate	Current Expenditures as of October 31, 2020	Balance to Complete
116203	PE	\$6,809,563	\$2,498,294	\$4,311,269
	RW	\$6,315,625		\$6,315,625
	CN	\$279,355,072		\$279,355,072
	<b>TOTAL</b>	<b>\$292,480,260</b>	<b>\$2,498,294</b>	<b>\$289,981,966</b>

#### Cost Estimating Methodology

The preliminary engineering estimate includes field investigation costs for survey, geotechnical data collection, traffic counts, environmental support, and professional engineering design services to develop design plans and construction documents.

The right of way estimate was developed using the impacts depicted on preliminary RFP plans. Land values were determined via market data. Costs were adjusted as needed for impacts to structures and administrative efforts.

The estimated construction cost contain sub-components that include an estimated design builder's bid price (contract value), Department contingency, early completion incentives, as well as associated post-award owner costs. The construction estimate was developed with quantities from the RFP conceptual plans. Unit costs were tabulated using recent and similar projects, available VDOT bid tab information, and regional market trends. Construction complexity was a factor in determining final unit prices. The design build contract will be lump sum, with payments made on Project physical percent complete.

### 4. PROJECT FUNDS

Project funding is demonstrated in the Roanoke Valley Area Metropolitan Planning Organization's Long Range Transportation Plan and Transportation Improvement Program (TIP), as well as the Commonwealth's Statewide Transportation Program (STIP). The Roanoke Valley Area Metropolitan Planning Organization's amended its TIP on 12/20/19 to include \$14,512,080 in I-81 Corridor funds for the preliminary engineering phase of this project. FFY20 STIP Amendment #5 was subsequently approved by FHWA on 12/30/19, adding the preliminary engineering phase and associated funding to the Commonwealth's STIP.

Preliminary Engineering Phase for this project was authorized by the Federal Highway Administration (FHWA) on January 3, 2020 under federal project number NHPP-0812(323). The project authorization uses I-81 Corridor Funds.

**TABLE 4.1 SUMMARY OF PROJECT AUTHORIZATIONS**

<b>Project Authorization Summary as of October 31, 2020</b>					
<b>Federal Project</b>	<b>UPC(s)</b>	<b>Phase Classification</b>	<b>Cost</b>	<b>Federal Funds</b>	<b>Advance Construction</b>
NHPP-0812(323)	116203	PE	\$21,032,000	\$	\$16,825,600
				\$	
				\$	
<b>Total</b>			<b>\$21,032,000</b>	<b>\$</b>	<b>\$16,825,600</b>

### **Six Year Improvement Program (SYIP) Funding**

Table 4.2 summarizes the funds allocated to the projects by fund source and year.

**TABLE 4.2 SUMMARY OF PROJECT FUNDING BY SOURCE**

(Amounts in 000's)

<b>Funding Source</b>	<b>Previous</b>	<b>FY21</b>	<b>FY22</b>	<b>FY23</b>	<b>FY24</b>	<b>FY25</b>	<b>TOTAL</b>
I-81 Corridor Funds - State	\$13,071	\$36,434	\$52,531	\$54,479	\$65,513	\$70,453	\$292,480
<b>Subtotal</b>	\$13,071	\$36,434	\$52,531	\$54,479	\$65,513	\$70,453	\$292,480
<b>TOTAL</b>	\$13,071	\$36,434	\$52,531	\$54,479	\$65,513	\$70,453	\$292,480

## **5. FINANCING ISSUES**

The project is fully funded with state funds. There are no financing issues on the project.

## **6. CASH FLOW**

The project's annual cash expenditures are based on the project schedule developed by the VDOT Design Team. Table 6.1 below is a cash flow analysis for the project. It shows the comparison of previously expended and projected expenditures by fiscal year by phase against the total annual allocations. The project's cash flow analysis will be updated annually as expenditures are incurred.

**TABLE 6.1 CASH FLOW ANALYSIS**  
(Amounts in \$000's)

Expenditures		Thru FY21	FY22	FY23	FY24	FY25	Fy26	TOTAL
116203	PE	6,810						6,810
	Right of Way		4,042	2,274				6,316
	Construction	4,131	36,111	71,805	73,904	76,271	17,132	279,354
Cumulative Expenditures		10,941	51,094	125,173	199,077	275,348	292,480	292,480
Total Annual Allocations		49,505	52,531	54,479	65,513	70,453	0	292,480
Cumulative Allocations		49,505	102,036	156,515	222,028	292,480	292,480	292,480
Cash Flow per Year		38,564	50,942	31,342	22,951	17,132	0	0

## 7. P3 ASSESSMENT

Due to the advance development of the Project as noted in the Project Description section, it is highly unlikely that the Project would generate sufficient market demand/interest as a P3, nor gain significant project efficiencies to effectively leverage private sector innovation and expertise as a P3 procurement.

## 8. RISK AND RESPONSE STRATEGIES

A Risk Management workshop was held on March 19, 2020 and the Final Risk Management Report was published. The report was an outcome of the discussions and the various risk components and the mitigation strategies associated with the project. Numerous items were discussed, and the list below summarizes the risk items identified at the workshop that have an overall severity rating of 6 or higher and the overall mitigation strategies for these risks. The full Risk Management Report can be found within the project files.

The significant project risks were:

- COVID 19 impacts
- Market Conditions
- Unforeseen Geotechnical Conditions - Karst Geology
- Unforeseen Geotechnical Conditions - Trenchless Construction Techniques
- Incident Management During Construction
- NEPA Schedule Delay
- Vertical Clearance
- Borings – Field Work Delay
- Drainage – SWM Strategy
- Existing Pipe Condition

Mitigation strategies identified include:

- Increased development of contract language
- Incentivize completion to maintain schedule
- Increased partnership with industry, community, college, universities, and local governments
- Increased investigations and development of available project data
- Modifications to special provisions to address additional risk
- Increased utilization of online tools for public involvement
- Review of applicable design waivers and exceptions
- Continue to collect geotechnical data through the procurement process
- Include technical requirements to ensure downstream property impacts are addressed
- Camera pipes and provide assessment videos as part of RFP Information Package

## **9. ANNUAL UPDATE CYCLE**

The submission date of the Initial Financial Plan is January 31, 2021. The first annual update will be submitted by January 31, 2022 and will be based on a "data as of" date of October 31, 2021. Future annual updates will be submitted by January 31 of that year, with a "data as of" date of October 31 of that year.