



I-81 Freight Capacity & Connections **Providing Opportunities for Economic Growth,** **Equitable Job Access, and Improved Safety**

FY2022 Multimodal Project Discretionary Grant (MPDG) **Application** **INFRA & Rural**

May 23, 2022

Office of the Secretary of Transportation, US DOT

Maryland Department of Transportation
State Highway Administration

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Basic Project Information	
What is the Project Name?	I-81 Freight Capacity and Connections: Providing Opportunities for Economic Growth, Equitable Job Access, and Improved Safety
Who is the Project Sponsor?	Maryland Department of Transportation State Highway Administration
Was an application for USDOT discretionary grant funding for this project submitted previously?	Yes (Title: I-81/Halfway Boulevard Freight Connections)
A project will be evaluated for eligibility for consideration for all three programs, unless the applicant wishes to opt-out of being evaluated for one or more of the grant programs	<input checked="" type="checkbox"/> Opt-out of Mega? <input type="checkbox"/> Opt-out of INFRA? <input type="checkbox"/> Opt-out of Rural?
Project Costs	
MPDG Request Amount	Exact amount in year-of-expenditure dollars: \$65.04M
Estimated Federal funding (excluding MPDG)	Estimate in year-of-expenditure dollars: \$6.32M
Estimated other Federal Funding (excl. MPDG) further detail	Other Federal funding from Federal Formula dollars: \$6.32M – National Highway Performance Program Other Federal funding being requested from other USDOT grant opportunities?: \$0 From What Program(s)?: N/A
Estimated non-Federal funding	Estimate in year-of-expenditure dollars: \$16.26M
Future Eligible Project Cost (Sum of previous three rows)	Estimate in year-of-expenditure dollars: \$87.62M
Previously incurred project costs (if applicable)	Estimate in year-of-expenditure dollars: \$4.18M
Total Project Cost (Sum of ‘previous incurred’ and ‘future eligible’)	Estimate in year-of-expenditure dollars: \$91.8M
INFRA: Amount of Future Eligible Costs by Project Type	1) A highway freight project on the National Highway Freight Network: \$81.3M 2) A highway or bridge project on the National Highway System: \$81.3M 3) A freight intermodal, freight rail, or freight project within the boundaries of a public or private freight rail, water (including ports), or intermodal facility and that is a surface transportation infrastructure project necessary to facilitate direct intermodal interchange, transfer, or access into or out of the facility: \$0 4) A highway-railway grade crossing or grade separation project: \$0 5) A wildlife crossing project: \$0 6) A surface transportation project within the boundaries or functionally connected to an international border crossing

	<p>that improves a facility owned by fed/state/local government and increases throughput efficiency: \$0</p> <p>7) A project for a marine highway corridor that is functionally connected to the NHFN and is likely to reduce road mobile source emissions: \$0</p> <p>8) A highway, bridge, or freight project on the National Multimodal Freight Network: \$81.3M</p>
Rural: Amount of Future Eligible Costs by Project Type	<p>1) A highway, bridge, or tunnel project eligible under National Highway Performance Program: \$81.3M</p> <p>2) A highway, bridge, or tunnel project eligible under Surface Transportation Block Grant: \$81.3M</p> <p>3) A highway, bridge, or tunnel project eligible under Tribal Transportation Program: \$0</p> <p>4) A highway freight project eligible under the National Highway Freight Program: \$81.3M</p> <p>5) A highway safety improvement project, including a project to improve a high risk rural road as defined by the Highway Safety Improvement Program: \$0</p> <p>6) A project on a publicly-owned highway or bridge that provided or increases access to an agricultural, commercial, energy, or intermodal facility that supports the economy of a rural area: \$81.3M</p> <p>7) A project to develop, establish, or maintain an integrated mobility management system, a transportation demand management system, or on-demand mobility services: \$0.</p>
Project Location	
State(s) in which project is located	Maryland
INFRA: Small or Large project	Small Project
Urbanized Area in which project is located, if applicable	The Project is located within the Hagerstown MD-WV-PA UZA
Population of Urbanized Area (According to 2010 Census)	Population 182,696 in the 2010 US Census
Is the project located in Area of Persistent Poverty or Historically Disadvantaged Community?	<ul style="list-style-type: none"> ▪ Historically Disadvantaged Community: Census Tract 108.02 ▪ Area of Persistent Poverty: Census Tract 9
Is the project located (entirely or partially) in Federal or USDOT designated areas	<ul style="list-style-type: none"> ▪ Opportunity Zones: YES (Partially) ▪ Empowerment Zones: NO ▪ Promise Zones: NO ▪ Choice Neighborhoods: NO
Is the project currently programmed in the TIP, STIP, MPO LRTP, State LRTP, and State Freight Plan?	<p>The project is currently programmed in the following plans.</p> <ul style="list-style-type: none"> ▪ TIP: HEPMPO Transportation Improvement Program ▪ STIP: MDOT 2019-2022 Statewide Transportation Improvement Program

- **MPO LRTP: HEPMPO 2045 Long Range Transportation Plan**
- **State LRTP: MDOT 2040 Maryland State Transportation Plan**
- **State Freight Plan: Maryland Strategic Goods Movement Plan (2017); 2022 Maryland State Freight Plan Update (*underway*)**

These plans can be found in the Appendix 1

TABLE OF CONTENTS

I.	PROJECT DESCRIPTION	1
I.1	I-81 Background and Importance	1
I.2	Project Scope	1
I.3	Project History.....	2
I.4	On-going Infrastructure Investment.....	2
I.5	Description of Previously Incurred Costs	3
I.6	Approach to Addressing Transportation Challenges	3
II.	PROJECT LOCATION	5
II.1	Hagerstown Eastern Panhandle Area and Washington County.....	5
II.2	Federally Designated Community Development Zone.....	6
II.3	Historically Disadvantaged Community & Area of Persistent Poverty.....	7
III.	PROJECT PARTIES	7
III.1	MDOT SHA (Lead Applicant).....	7
III.2	Washington County.....	8
III.3	Private Development.....	8
IV.	GRANT FUNDS, SOURCES AND USES OF PROJECT FUNDS	8
IV.1	Budget and Spending Plan	8
V.	PROJECT OUTCOME CRITERIA	10
V.1	Safety.....	10
V.2	State of Good Repair.....	11
V.3	Economic Impacts, Freight Movement, and Job Creation.....	12
V.4	Climate Change, Resiliency, and the Environment	15
V.5	Equity, Multimodal Options, and Quality of Life	16
V.6	Innovation Areas: Technology, Project Delivery, and Financing	17
VI.	BENEFIT-COST ANALYSIS SUMMARY	18
VII.	PROJECT READINESS AND ENVIRONMENTAL RISK	19
VII.1	Technical Feasibility.....	19
VII.2	Project Schedule.....	20
VII.3	Required Approvals.....	20
VIII.	STATUTORY PROJECT REQUIREMENTS	23

LIST OF TABLES

Table 1: MPDG Project Budget Summary by Source and Use.....	8
Table 2: MPDG Project Budget Summary by Fiscal Year.....	9
Table 3: Spending by Project Component.....	9
Table 4: Summary of Vehicle Crashes by Type and Year within the Project Area.....	11
Table 5: Jobs provided by Local Employers which will benefit from the Project's Access Improvement.....	13
Table 6: MDOT Structure on Funding Conditions.....	18
Table 7: Benefit Cost Analysis Summary.....	18
Table 8: Schedule of I-81 Phase 2 Project Milestones.....	20
Table 9: Potential Risks and Mitigation Strategies.....	23

LIST OF FIGURES

Figure 1: I-81 Improvement Project Phasing.....	1
Figure 2: A Map of the Project Area Showing Proposed Road Widening, Interchange Improvements and Development.....	6
Figure 3: Current I-81 Pavement Conditions.....	12
Figure 4: Environmental Justice Communities in the Project Area.....	16

APPENDICES

Appendices are available at the following weblink: <http://mdot.maryland.gov/INFRA>

Appendix 1: CTP, TIP, and LRTP – I-81

Appendix 2: I-81 Phase 2 Tech Project Engineering Drawings

Appendix 3: Project Management Plan for I-81

Appendix 4: Letters of Support & Commitment

Appendix 5: I-81 Cost Estimate

Appendix 6: I-81 FHWA Cost Estimate Review Final Report

Appendix 7: EA and FONSI for I-81

Appendix 8: I-81 Financial Plan

Appendix 9: Benefit-Cost Analysis Technical Report

I. PROJECT DESCRIPTION

The Maryland Department of Transportation State Highway Administration (MDOT SHA), in partnership with Washington County, Maryland, requests \$65.04 million (80% of unfunded need) in US DOT Multimodal Project Discretionary Grant (MPDG) funding under both the INFRA and Rural Transportation programs, to the \$91.8 million I-81 Freight Capacity & Connections Project (the Project). The Project will significantly improve safety and operations and provide opportunities for economic growth and equitable job access along 3.5 miles of I-81 in Western Maryland. When funded, this Project will complete Phase 2 of a larger multi-phase, multi-state project to expand I-81 within the State of Maryland (See Figure 1).

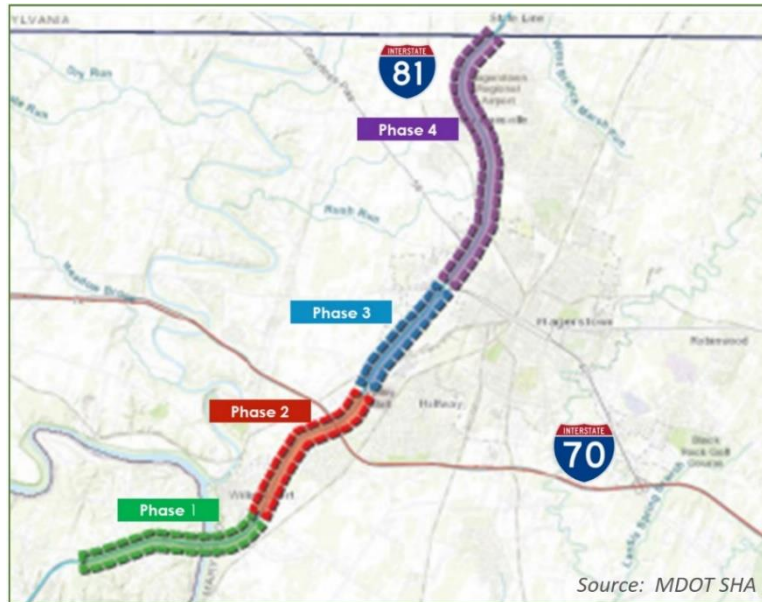


Figure 1: I-81 Improvement Project Phasing

and peacetime operations. Due to its proximity to Washington, DC, and other major metropolitan areas along the East Coast, this corridor's ability to handle emergency evacuations due to terrorism or natural disaster is crucial.

As described in [Section 5](#) and [Section 8](#), I-81 is vital for the distribution of raw materials and finished goods between Appalachia and some of the largest consumer markets in the Northeast. Several major North American distribution facilities are located near the I-81 project segment including Tractor Supply Company, Sealy Mattress, FedEx, Home Depot, Fives Landis, an Amazon fulfillment center, and other warehousing and distribution centers. Freight traffic within the I-81 project segment has grown exponentially in the five-decade period since its construction; however, the highway itself has remained substantively unchanged. Consequently, connectivity, safety, and traffic flow have suffered.

I.2 Project Scope

If selected, MPDG funding will complete Phase 2 of a four-phase, 12.1-mile, multi-year project with an estimated total cost of nearly \$400 million. **The purpose of Phase 2 is to improve safety and traffic operations along 3.5 miles of I-81 from 2,000 feet north of MD 63/MD 68 to 1,000 feet north of Halfway Boulevard.** A map of the project segment is shown

I.1 I-81 Background and Importance

I-81, locally named the Maryland Veterans Memorial Highway, is a continuous north-south highway extending from Canada to Tennessee that is designated as a [major freight corridor](#) on the National Highway Freight Network. I-81 links Virginia, West Virginia, Maryland, and Pennsylvania, and is heavily used as a long-distance truck bypass around the congestion of I-95 and other coastal routes, delivering freight throughout the region and along the East Coast. This highway is also part of the Strategic Highways Network, as it has been identified as critical to the Department of Defense's domestic operations, emergency mobilization,



One of the Nation's Freight Backbones: I-81 is essential to moving freight from Canada to Tennessee. Thousands of regional jobs in MD, WV, and PA are dependent on I-81 moving freight through Western Maryland.

in Figure 2. Preliminary design plans are provided in Appendix 2. This includes widening the interstate from four to six through lanes with construction of two new travel lanes (one southbound and one northbound). The Project also improves ramp and merge lane configurations for three interchanges on this segment of I-81, including the critical interchange connecting I-70 and I-81. Project improvements will dramatically reduce the crash rate on a segment of I-81 marked by high truck traffic levels and a troubling safety history. The Project will also:

- Improve the US 11 interchange in Williamsport, and the two interchanges at I-70 and Halfway Boulevard southwest of Hagerstown.
- Implement transportation operations strategies such as truck platooning which was recently authorized in Maryland.
- Deploy ITS devices such as dynamic message signs (DMS), automatic traffic recorders, and software enhancements that enhance wayfinding and help dynamically reroute traffic.
- Implement stormwater management improvements and install noise barriers as required.
- Install electric vehicle (EV) chargers at two locations to support and encourage expanded EV truck fleets and other vehicles.

This Project has been a longstanding priority for the state and represents one of the MDOT SHA's largest investments in Western Maryland.

I.3 Project History

The Project is a vital component of a multi-state effort to widen I-81 and provide vital regional capacity and connections. Project planning began in 2001, with the completion of a purpose and need statement and preliminary engineering. More than 15 years later, MDOT broke ground on Phase 1 in October 2016, which was later completed in December 2020 at a cost of \$105.9 million. The MDOT SHA is now aggressively preparing to advance Phase 2 through final design to begin construction. To date, MDOT has spent over \$5 million for project planning and design costs and worked with Washington County to secure additional funds to support construction. USDOT discretionary grant funds will provide the missing piece to advance this important project. Advancing the Project will eliminate an existing bottleneck, helping to better connect I-81 with I-70, which will improve freight and personal transportation, and support economic development in rural western Maryland and throughout the Appalachian Region.

I.4 On-going Infrastructure Investment

The Project will complement recent and on-going transportation projects occurring locally and along I-81 in adjacent states. In 2014, I-81 in West Virginia was widened to 3 lanes from Exit 23 (US 11) to just north of Exit 16 (WV 9/Edwin Miller Blvd/Hedgesville Road) and is currently being expanded to three lanes from Exit 12 (WV 45/Apple Harvest Road) to Exit 8 (Tabler Station Road). If I-81 in the project segment is not completed, the transition of 3 lanes to 2 lanes will act as a bottleneck for traffic heading north to I-70 and will cause passive diversion onto the local surface street network – further impacting travel and quality of life in local, rural communities. Pennsylvania is finishing up their “I-81 Improvement Strategy” that sets a vision for improvements to I-81 and identifies priorities for future funding. Two of the four “top projects” being in Greencastle, PA and Chambersburg, PA – the first two counties north of Maryland. Further, Virginia and New York have set aside funding for I-81 improvements.

The I-81 Phase 2 improvements provide a link that significantly improves mobility and safety in the region. Grant funds will unlock the Project's many benefits, including:

- **Reduce the high crash rate on I-81 and improve safety, reducing fatalities**
- **Reduce travel delays**
- **Provide more reliable travel times**
- **Improve connectivity and resilience of the road network**
- **Enhance access to major freight distribution centers to improve economic competitiveness**
- **Facilitate local economic development**
- **Expand connections to jobs and services**
- **Reduce greenhouse gas emissions by reducing vehicle idling**
- **Positive impacts with BCR of 1.08**

In addition to improvements to I-81, local freight companies and truckers will benefit from improvements to Halfway Boulevard and the interchange linking it to I-81. The improved connection will now provide a needed detour around lane-blocking crashes should they occur on I-81 or I-70 in the project area. The Boulevard is also an essential link with I-81 for economic development, and access to truck parking, services and amenities. Improvements will assist with traffic and freight flows, reducing travel time for freight destined and originating from over five million square feet of warehouse and distribution centers as well as essential services such as gas stations, travel centers, and auto repair centers.

I.5 Description of Previously Incurred Costs

Prior to FY 2021, MDOT SHA has spent \$5 million on planning and design for I-81 Phase 2. In addition, MDOT spent \$105.9 million on design and construction of I-81 Phase 1, which was completed in 2020, \$39.8 million of additional funds were contributed by West Virginia to complete the additional widening up to the Maryland state line.

I.6 Approach to Addressing Transportation Challenges

The Project will address four primary transportation challenges that inhibit freight movement and safe travel along the I-81 corridor in Maryland.

Safety and Roadway Crashes

Maryland is recognized as having the most dangerous stretch of I-81 in the nation. I-81 has eight active interchanges along this 12-mile stretch of road creating merging challenges from the mix of trucks and vehicles entering and exiting the highway. Within the Project limits (I-81 Phase 2), total crashes increased 54 percent and truck crashes rose by 35 percent between 2015 and 2018. In fact, in April 2022 as we prepared this grant application, [a fatality occurred](#) within the project area on I-81 near Halfway Boulevard.¹ Safety issues like these are well documented and discussed in greater detail later in this document. The Project will improve safety and roadway crashes within the project segment by increasing capacity and reducing instances of congestion along this heavily traveled segment. The Project will also reconstruct and improve interchanges to improve the flow of traffic onto the mainline and weaving operations among closely spaced interchanges.



The truck crash rate for I-81 in Maryland is over twice that of similar roadways in the state.

Inadequate Capacity to Reliably Carry Growing Freight Demand

The existing 4 lane configuration (2 lanes in both directions) of I-81 cannot accommodate current traffic volume and projected growth through 2045. Currently, the Maryland I-81 corridor carries an average of 21,000 trucks per day, more than one-quarter – 27 percent – of all vehicles. In a 2015 study, the MDOT SHA found that I-81 is the most heavily traversed corridor by trucks in the entire state and will see a 56 percent increase in truck VMT by 2045. The presence of I-81, I-70, and CSX (which has an intermodal facility in Chambersburg, approximately 20 miles to the north) is driving continued growth in traffic from existing distribution facilities, and creating demand for new ones, with one warehouse along New Gate Boulevard recently completing its Phase 3 expansion in 2019. Freight moved in tons is expected to increase by roughly 70 percent over the next 25 years, with forecasts indicating approximately 30,000 trucks per day by 2045.

Since 2015, Washington County has over 20 million square feet of new warehouse space built or in the process of being built. Review of transportation studies submitted to the county for individual projects reflect that each million square feet of warehouse space will generate approximately 600 new daily truck trips. When these projects are complete, an additional 12,000 trucks could be impacting the highways in this region. As traffic from these developments grows, it brings new trucking-related development as well, including truck servicing, fueling stations, and overnight truck parking, ensuring that this area will continue

to be an important node in the regional and national truck freight network. The Project reduces this problem by increasing capacity on I-81 and improving access to the asset at several interchanges along this corridor.

Traffic Operations, Congestion Reduction, and Environmental Sustainability

Increasing truck and vehicle volume has accelerated the problems resulting from existing roadway deficiencies. These deficiencies include substandard interchange ramp configurations and insufficient lengths of merge lanes. Traffic volumes along I-81 south of I-70 are anticipated to grow by over 35 percent between now and 2045. These volumes are expected to result in several failing merge, diverge, and weaving operations at the US 11 and I-70 interchanges in the absence of any improvements to the corridor. Further, future travel speeds along both northbound and southbound I-81 are expected to decrease significantly between the US 11 and I-70 interchanges. The level-of-service (LOS) on the Phase 2 segment currently ranges from B to D and is projected to deteriorate to B to F by 2040 under the No Build scenario. **If improvements are not made, the I-81 southbound merge from I-70, I-81 southbound merge from US 11, and I-81 southbound diverge to US 11 are anticipated to operate at a LOS F, E and F respectively.** This will significantly impact the efficiency of freight travel on the I-81 corridor.



Frequent crashes result in hours of backlog congestion.

Operations are also affected by capacity constraints caused by the four-lane configuration. **The proposed widening and interchange upgrades realized through the MPDG program investment will substantially increase capacity, lessen freight and commuting delay, and are expected to reduce the number of crashes in the I-81 corridor by at least 40 percent.** These improvements complement recent investments to improve I-81 in the region. MDOT SHA has recently completed two projects in the vicinity of the I-81 Widening Phase 2 project. The first project included an acceleration lane extension along I-81 northbound from I-70 to Halfway Boulevard, and an acceleration lane extension along southbound I-81 from Salem Avenue to US 40. This work was completed in 2018.

The second project was I-81 Widening Phase 1, which widened I-81 to three lanes from US 11 in West Virginia to north of MD 63/MD 68 (including the Potomac River bridges) and was completed in 2021. Although not yet funded, MDOT SHA plans to complete the final 7.3 miles of I-81 corridor widening and improvement in two future phases between Halfway Boulevard north to the Pennsylvania state line. The Phase 2 widening project will eliminate the bottleneck that exists as NB I-81 transitions from 3 lanes to 2 lanes immediately south of I-70. In addition to contributing to regular peak hour congestion, a crash or construction work that blocks a lane of traffic can cause substantial delays. With three lanes in each direction, a single blocked lane of traffic will have a much lower impact on traffic delay.

Addressing traffic operations will also yield positive environmental impacts; by reducing high levels of congestion, the Project will lower emissions due to idling in this highly trafficked corridor. The new EV charging locations included in the project will support and encourage the expansion of EV truck fleets by providing the necessary charging infrastructure in the project area, convenient to both I-81 and I-70.

Connectivity and Access to Jobs and Economic Opportunity

Previous INFRA grant applications included the construction of Halfway Boulevard, a key connection to truck parking, services and amenities, and other truck origins and destinations. The Halfway Blvd. extension project is now being completed using state and local funding, but already it is attracting additional companies to the region, companies that will depend on access to I-81 for the transport of goods. Just this past March, Hitachi Rail selected the Halfway Boulevard and its adjacent I-81 location for their new \$70M, 300,000 square-foot facility, expected to create up to 460 full-time jobs and help sustain 13,000 jobs in the region.

With the widening of I-81 and the new connection to Halfway Boulevard, the regions roads now facilitate greater access to jobs and enhances quality of life for local residents.

With new and expanding development occurring in the Project area, improvements will help ensure more reliable and efficient access to these jobs. Further, the Project Area is also in a travel corridor for many residents from the north commuting to jobs to the south, including by the local bus system; bottlenecks have impacts that radiate far beyond the Project location, impacting workers in the broader region.

The impact of the project on the reliability of the interstate network in the region will also support the continued growth of manufacturing and distribution centers in the project area. These jobs – many of which are union jobs – provide essential opportunities for blue collar and low-skilled workers in the region.

This project meets the criteria for the following federal designations:

- ✓ **Area of Persistent Poverty**
- ✓ **Historically Disadvantaged Community**
- ✓ **Urbanized Area**
- ✓ **Opportunity Zone**

II. PROJECT LOCATION

The Project is located entirely in Washington County, Maryland, which is part of the state's 6th Congressional District. It is also located within the Hagerstown, MD-WV-PA Urbanized Area (UZA), which is considered rural for the purposes of the MPDG program. The Hagerstown UZA had a 2010 Decennial Census population of 182,696. Geospatial coordinates are 39.63 latitude, -77.79 longitude. The Project is located in an Area of Persistent Poverty and a Historically Disadvantaged Community.

As illustrated by the red segment shown in Figure 2, the I-81 Phase 2 corridor expansion begins on I-81 from 2,000 feet north of MD 63/MD 68 and continues to 1,000 feet north of Halfway Boulevard, a of 3.5-mile distance. The Project will improve the following I-81 interchanges (illustrated on the map as yellow circles).

■ Exit 2: US 11

■ Exit 4: I-70

■ Exit 5: Halfway Blvd

New and recent warehousing and distribution businesses and additional development in the area are shown in pink. The Project investments are complemented by the Halfway Boulevard Extension, which is being completed by Washington County and private funding partners.

II.1 Hagerstown Eastern Panhandle Area and Washington County

Hagerstown, Maryland, is the largest city in the Hagerstown Eastern Panhandle (HEPMPO) area. Located in the center of the region, Hagerstown is nicknamed “Hub City” for its position at the crossroads of I-81 and I-70, and the CSX, Norfolk Southern, and Winchester & Western Railroads. Hagerstown is also the commercial and industrial hub for a tristate area that includes Western Maryland, South Central Pennsylvania, and the Eastern Panhandle of West Virginia.

Washington County benefits from its convenient location in the heart of the Appalachian region, where excellent rail service and the national highway network provide access to 50 percent of the nation's population overnight. Additionally, the Hagerstown Regional Airport off I-81 services about 50,000 passengers per year. Approximately 20 business and industrial parks, including 2 technology parks, are concentrated in the Hagerstown and Williamsport areas with easy access to I-81 and I-70, as shown in Figure 2. Nearly 2,180 acres are ready for commercial and industrial development, and approximately 6 million square feet of office, commercial, warehouse, and manufacturing space are in use or available for sale or lease along Halfway Boulevard alone.

The availability of industrial and office properties, combined with easy access to Maryland's busiest freight highway, I-81 positions Washington County for continued growth and development that is anticipated in the short- and long-term horizon. Currently, Washington County has more than 71,045 workers at its 3,450 companies and is anticipating strong and stable growth with the availability of developable land along the I-81 corridor. The Greater Hagerstown region is a fast-growing area, with growth of 4.9 percent between

2010 and 2016 according to the US Census. It is a major employment center for the surrounding rural region, with nearly half of all workers commuting in from neighboring states. Local businesses, such as the FedEx Mid-Atlantic distribution sites and Volvo Trucks powertrain manufacturing plant, depend heavily upon free-flow access to both I-81 and I-70 for efficient supply chain management.

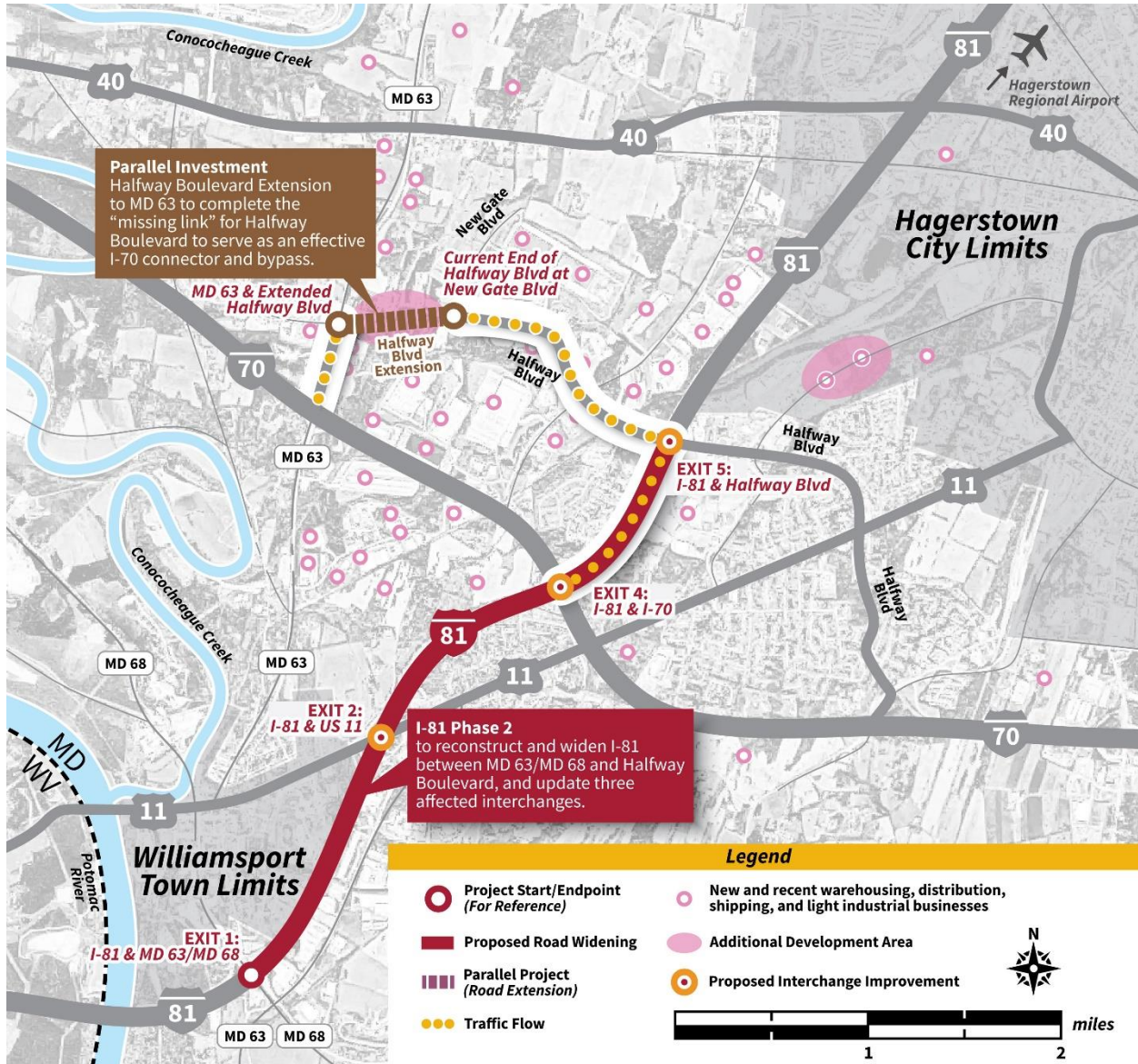


Figure 2: A Map of the Project Area Showing Proposed Road Widening, Interchange Improvements and Development

II.2 Federally Designated Community Development Zone

The Project includes investments in Census Tract 108.02, which is identified as an Opportunity Zone ([Opportunity Zone # - 24043010802](#)). The census tract is a low-income community located in Williamsport, Maryland. It has a population of approximately 2,700 and a median household income of approximately \$60,000, which is 31% lower than the median household income for the state of Maryland. It is one of five Opportunity Zones located in Washington County, with the other four being located within the City of Hagerstown. While the I-81 project is not located within these other four opportunity zones, it is a critical interstate corridor providing access to jobs and essential services for the region.

II.3 Historically Disadvantaged Community & Area of Persistent Poverty

The Project is partially located within Census Tract 108.02 (Washington County, Maryland) which is a Historically Disadvantaged Community. Furthermore, the Project runs adjacent to six additional Transportation Disadvantaged Census Tracts and are likely highly dependent on I-81 and would benefit from related improvements. Details for each of these census tracts can be found at the [USDOT Transportation Disadvantaged Census Tract Website](#).

The Project is located within an Area of Persistent Poverty (Census Tract 9, Washington County). Additionally, the percentage of households below the poverty line in this opportunity Zone is 12%, which is 3% higher than the rate for the State of Maryland (9%).

III. PROJECT PARTIES

The I-81 Project has strong constituent and business advocacy at the local, regional and state levels. The I-81 Corridor Coalition is a consortium of stakeholders dedicated to improving the safety, continuity, and efficiency of commercial and personal travel along the I-81 corridor. This regional partnership comprises state departments of transportation, metropolitan and regional planning organizations, non-governmental organizations, and private entities located across six states. The widening of I-81 throughout the corridor enjoys support from key stakeholders because of its impact on economic growth in the region. Grassroots efforts from local officials and the public have led the MDOT SHA and the HEPMPO to reprioritize funding in the [HEPMPO 2045 Long-Range Transportation Plan](#). Widening I-81 has been identified as the top priority for the MPO for nearly 20 years and is the top transportation priority for Washington County.

The MDOT SHA and Washington County are partners on this grant, with grant funds going to MDOT SHA, due to the agency's extensive experience managing and executing similar large, grant-funded projects. MDOT SHA is prepared to ensure the work complies with all state and federal requirements.

III.1 MDOT SHA (Lead Applicant)

MDOT SHA is entrusted with guiding the safe, efficient mobility of all those who live, work and travel in Maryland. As one of MDOT's Transportation's Business Units (TBUs), MDOT SHA is guided by the MDOT mission statement to be a "customer-driven leader that delivers safe, sustainable, intelligent, and exceptional transportation solutions in order to connect customers to life's opportunities."

MDOT SHA will be responsible for grant implementation, including day-to-day management, coordination among project partners, quality control, and project evaluation. MDOT SHA will execute the construction of improvements to I-81, including interchanges, approaches, and associated work such as stormwater management facilities and noise barriers. The [Project Management Plan](#) for I-81 (including Phase 1, which is complete) is included in Appendix 3. MDOT SHA will also complete engineering design work (partially completed), and any needed acquisition of right-of-way.

MDOT has a strong and successful history working on grants with our federal partners across all the TBUs. MDOT SHA has extensive experience with the reporting requirements and project management process for TIGER/BUILD grants. MDOT SHA has been working with the Federal Highway Administration (FHWA) to implement the Fort Meade Multimodal Accessibility Project since 2014 with much success. MDOT SHA has a staff member in the Office of Policy & Research whose responsibilities include TIGER project reporting and liaison with the FHWA Division Office on all things relating to the grant, including monthly, quarterly, and annual reporting; management of the Grant Agreement; and coordination with MDOT SHA field personnel, including attendance at periodic project partnering meetings. This is just one example of the Department's continued success in a long history of state and federal partnerships.

III.2 Washington County

Washington County is located in western Maryland and is one of three Maryland counties recognized by the Appalachian Regional Commission as being part of Appalachia. The county borders southern Pennsylvania to the north, Northern Virginia to the south, and the Eastern Panhandle of West Virginia to the south and west. Washington County has begun, and in some cases finished, coordination with state resource agencies regarding the Halfway Boulevard Extension – a project that compliments I-81 Phase 2 construction. Due to the importance of this project and its benefits to countywide transportation the County is contributing \$1 million to assist with the non-Federal match for widening I-81.

III.3 Private Development

The Project includes a lengthy list of project supporters across a range of stakeholder groups, including elected officials from across the local, state, regional, and federal level, economic development groups, private businesses, and professional associations. The full list of letters of support can be found in Appendix 4 or online at the MDOT Transportation Grants [website](#).

Pilot Travel Center and AC&T are partnering with MDOT SHA and Washington County to advance the EV truck charging pilot included in this Project. These two locations offer critical infrastructure support to truck fleets, including overnight facilities, restrooms, showers, and other services. Both will provide the space for the EV charging infrastructure included in the Project and are committed to working hand-in-hand with the Project Partners to distribute information to truck fleet personnel and gather feedback, as demonstrated in their letters of support.

IV. GRANT FUNDS, SOURCES AND USES OF PROJECT FUNDS

This application requests \$65.04 million in grant funds for the Project with a total cost of \$91.8 million. Non-federal funds from the State and local sources account for 20 percent of project costs. MPDG program funds account for the remaining 80 percent.

IV.1 Budget and Spending Plan

Table 1 summarizes the Project sources and uses of funds for the \$91.8 million project.

Table 1: MPDG Project Budget Summary by Source and Use

	Federal Sources (\$million)		Non-federal Sources (\$million)	Total (\$million)
	MPDG	Other Fed		
Pre-construction	0	6.32	4.18	10.5
Right-of-Way	1.6	0	0.40	2
Utilities	2.86	0	0.71	4
Construction	42.45	0	10.62	53.07
Contingency	18.13	0	4.53	22.66
TOTAL	65.04	6.32	20.44	91.80

Table 2 provides the Project's spending plan of funding sources and uses anticipated to be utilized over time. Final design, right-of-way acquisition and utility relocation, are anticipated to occur in 2026 fiscal year, adding to federal and state funds already expended in this and prior fiscal years on pre-construction activities. Construction is anticipated to start in FY 2026 and be completed in FY 2028. A 40% contingency amount has been added to the construction cost estimate. The project financing plan would utilize MPDG grant funds before state funds.

Table 2: MPDG Project Budget Summary by Fiscal Year

Project Budget (\$ million)								
	FY-22 & Prior	FY-23	FY-24	FY-25	FY-26	FY-27	FY-28	TOTAL
Pre-Construction	4.53	2.5	2.9	4.843	2.727	0	0	17.5
<i>Federal</i>	0.35	2.5	2.7	4.1884	2.1816	0	0	11.92
MPDG	0	0	2.7	4.1884	2.1816	0	0	9.07
Other	0.35	2.5	0	0	0	0	0	2.85
<i>Non-Federal</i>	4.18	0	0.2	0.6546	0.5454	0	0	5.58
MATCH	4.18	0	0.2	0.6546	0.5454	0	0	5.58
Construction	0	0	0	0	15.905	25.149	33.246	74.3
<i>Federal</i>	0	0	0	0	12.724	20.1192	26.5968	59.44
MPDG	0	0	0	0	12.724	20.1192	26.5968	59.44
Other	0	0	0	0	0	0	0	0
<i>Non-Federal</i>	0	0	0	0	3.181	5.0298	6.6492	14.86
MATCH	0	0	0	0	3.181	5.0298	6.6492	14.86
Total Federal	0.35	2.5	2.7	4.1884	14.9056	20.1192	26.5968	71.36
Total Non-Federal	4.18	0	0.2	0.6546	3.7264	5.0298	6.6492	20.44
TOTAL	4.53	2.5	2.9	4.843	18.632	25.149	33.246	91.8

None of the requested MPDG funds would be subject to the \$500 million maximum for non-highway, bridge, railroad crossing, or grade separation projects.

While widening I-81 has been a top priority for over 20 years, the barrier to getting this Project built is funding, given that County and state resources are limited. MDOT covered the cost of Phase 1 with some assistance from West Virginia. After many years, Phase 1 is now complete. **Without this grant, MDOT will not be able to fill the remaining funding gap, indefinitely delaying the completion of this important project. During this time, growing traffic will only worsen the safety and congestion problems on I-81.**

Table 3: Spending by Project Component

Source of Funds	Amount
MPDG	\$65.04M (71%)
Other Federal	\$6.32M (7%)
Total Federal	\$71.36M (78%)
MDOT SHA	\$19.44M (21%)
Washington County	\$1.0M (1%)
Total	\$91.8M

Spending by Project component is shown in Table 3. A detailed cost estimate for each component is available in Appendix 5. These cost estimates are based on Preliminary Engineering, and include reasonable contingency factors appropriate to the scope of each component. For I-81, a [Financial Plan](#) and [Project Management Plan](#) have been developed to identify and mitigate potential cost and schedule problems.

Results of a [Federal Highway Administration \(FHWA\) Cost Estimate Review \(CER\)](#) for widening all of I-81 in the state of Maryland is provided in Appendix 6. The CER workshop was conducted with a review team consisting of FHWA, MDOT SHA, and consultants to verify the accuracy and reasonableness of the cost estimates and schedule, and to develop a probability

range for the cost estimate that represents the Projects’ current stage of development. The results were used as the basis for setting the baseline total cost in the Initial Financial Plan.

MDOT understands that cost overruns on the Project will be their responsibility. Further, construction contracts typically are structured to shift the risk of cost overruns to the construction contractor.

Previously Incurred Expenses

Previously incurred expenses are described in [Section 1](#).

Leveraging of Federal Funding

MDOT and Washington County have worked for nearly two decades to pull together the funding for the I-81 improvements, and these efforts to leverage federal funding are described separately below. The non-Federal match for the MPDG grant is \$16.2 million, or 20 percent.

State Funding

Widening I-81 in Maryland was identified as a priority for the multistate region 20 years ago. More recently, MDOT developed a [Finance Plan](#) and a [Project Management Plan](#) to ensure that the entire 12-mile Project could be completed. Phase 1 is now complete, with over \$105 million committed to date. For Phase 2, MDOT has spent \$5 million for Project planning and design costs and worked with Washington County to secure an additional \$1 million to support construction. The state also participates in the multistate I-81 Corridor Coalition, which seeks to coordinate efforts along the corridor. I-81 Phase 2 continues to have significant support, as evidenced by the MDOT SHA's \$15.2 million commitment of state funding.



In 2019, a serious truck crash between two tractor trailers in the Project area on I-81 southbound between Halfway Blvd and I-70 closed both lanes of I-81 southbound traffic for two hours.



On April 18, 2022, a woman died in a four-vehicle, chain-reaction crash, closing southbound I-81 in Hagerstown for six hours.

County and Private Funding

The County is contributing \$1 million to assist with the non-Federal match for widening I-81 showing their commitment to this Project. Although not part of the Project, it is noteworthy to mention that Washington County has worked extensively with private partners to complete the Halfway Boulevard Extension. Washington County developed a program, Making Connections, to leverage development interests in the creation of needed transportation infrastructure. The program was successful in creating a partnership with Bowman Development Corporation, which has dedicated 8.8 acres of right-of-way needed for the extension of Halfway Boulevard to MD Route 63, that is underway.

V. PROJECT OUTCOME CRITERIA

MDOT SHA and Washington County are together seeking MPDG funding because of the high burden of the cost of widening I-81 on the County and the State, particularly given that over 90 percent of the freight traffic in the County is through-traffic, neither originating in nor destined for Washington County.

V.1 Safety

The I-81 Phase 2 Project aligns with MDOT's [2021-2025 Strategic Highway Safety Plan \(SHSP\)](#) as well as the [2021-2025 Washington County Strategic Highway Safety Plan](#). As outlined in these plans, as well as previously in this document, this section of I-81 has a tragic history of crashes, injuries, and fatalities. The truck crash rate for I-81 in Maryland is over twice that of similar roadways in the state. Maryland is recognized as having the most dangerous stretch of I-81 in the nation, where there is a concentration of 10 interchanges within just 12.1 miles; the high concentration of truck traffic along this section only increases safety hazards along this section. Table 4 summarizes the number of crashes and fatalities in the project area for the five most recent pre-COVID years of accident data.

Many of these crash events are related to existing roadway deficiencies, which include substandard interchange ramp configurations and insufficient lengths of merge lanes. The Project addresses these unsafe conditions by reconstructing and improving the interchanges in the Project Area to create safer merge and weave segments. These improvements are complemented by enhanced wayfinding, operations strategies, and ITS investments to minimize crashes that result in abrupt lane shifts or attempted exits. Together with increased roadway capacity, these improvements will facilitate smoother, safer travel for trucks and vehicles alike. As a result, it is anticipated that the project investments will decrease crashes by at least 26 percent – avoiding an estimated 775 crashes over the next 20 years and eliminating 3 fatalities in this same period.

Table 4: Summary of Vehicle Crashes by Type and Year within the Project Area

Project Area Crashes						
YEAR	2015	2016	2017	2018	2019	Average
Fatal	0	1	1	0	0	0.4
Injury	58	58	45	55	23	47.8
Property Damage Only	61	78	113	111	36	79.8
Total	119	137	159	166	59	128

Further, air quality is negatively impacted by congestion and associated idling. Poor air quality results in unsafe health outcomes for those who reside within the surrounding area. Exhaust from motor vehicles can cause serious health effects. In addition, very fine particles emitted from diesel and gas engines are lung irritants and can trigger asthma attacks and more serious health conditions. All these contaminants are produced when motor vehicles idle, releasing fine particles that can penetrate deep into the lungs and even enter the blood stream. Fine particles can cause lung damage, aggravate respiratory conditions such as asthma and bronchitis, increase heart disease, lead to cancer, and can contribute to premature death. This particulate matter poses a particularly serious health risk for children, the elderlyⁱⁱ, and people with respiratory ailments. While the increased traffic volumes expected in the region result in only a minimal decrease in overall greenhouse gas emissions, a no-build situation with similar volumes could result in increase in emissions due to increased congestion.

Finally, the Project increases access to parking for trucks, which will generate safety benefits for motorized and non-motorized users as well as commercial vehicle operators.

V.2 State of Good Repair

MDOT SHA takes a proactive position to ensure a long-term state of good repair and appropriately tracks pavement condition and plans for increases in traffic volume. The [Maryland State Freight Plan](#) identifies system preservation and modernization as one of seven goals that are aligned with the National Strategic Freight Plan goals of safety, infrastructure, and innovation. Two objectives under this goal are to 1) strategically modernize infrastructure through innovative technology and practices to facilitate the movement of goods and 2) ensure state of good repair of state-owned freight infrastructure and facilities through performance-based asset management practices.

MDOT SHA maintains a [Pavement Condition NHS On-line Database](#) where users can access I-81 pavement condition data. This includes the national transportation performance measure infrastructure conditions, specifically the Good, Fair, & Poor condition ratings which are based on roughness, cracking and rutting/faulting, depending on surface type. As seen in Figure 3, the majority of the pavement along

the project segment is in “fair” condition. In addition, 2 of the 3 intersections the project is going to improve are in “poor” condition.

The investment in resurfacing of existing lanes on I-81 will reduce the near-term rehabilitation costs compared to the No Build case. Currently, this segment of I-81 is due for a \$6 million rehabilitation in 2025. The I-81 Phase 2 project includes this work; if implemented, rehabilitation would not be needed again until 2043. Additionally, by increasing the capacity of I-81, the Project will reduce delays related to all future maintenance and rehabilitation work, as well as reducing road damage caused by detouring traffic onto local infrastructure. As the traffic volumes on the I-81 corridor are projected to continue to rise, the reduction in detours resulting from crashes, maintenance work, and traffic delay will result in a decline in damage to local road infrastructure affected by diverted traffic.

V.3 Economic Impacts, Freight Movement, and Job Creation

I-81 is vital for the distribution of raw materials and finished goods between Appalachia and some of the largest consumer markets in the Northeast. Essential products including gravel, sand, wood products, non-metal mineral products, plastics, animal feed, foodstuffs, pharmaceuticals, machinery, motorized vehicles, and furniture are moved along I-81, comprising an estimated 10 percent of the nation’s gross domestic product with a gross value of more than \$1.85 trillion.

Several major North American distribution facilities are located near the I-81 corridor, from the Nova Bus Manufacturing and Headquarters and Prevost Manufacturing and Headquarters in Quebec, Canada, to the Volvo Group Powertrain Manufacturing and Technology facility in Hagerstown, Maryland, south to the Mack Trucks World Headquarters in Greensboro, North Carolina. More specifically, within the Project area are Tractor Supply Company, Sealy Mattress, FedEx, Home Depot, Fives Landis, an Amazon fulfillment center, and other manufacturing, warehousing and distribution centers critical to the North American supply chain. Additionally, Volvo has a manufacturing location in the Project Area, which is the last automotive manufacturer left in Maryland. This plant manufactures EV technology – an important component in the transportation industry’s efforts to confront climate change and address reliance on fossil fuels.

Regionally, I-81 is a critical commuter corridor, bringing employees from rural areas to employment centers in Hagerstown, MD; Martinsburg, WV; Chambersburg, PA; and other cities. I-81 is subject to daily congestion, as well as frequent backlog congestion from the high number of crashes. These problems will only worsen as demand for freight delivery in Maryland is expected to double by 2035.

The Project’s BCA shows that the improvements to I-81 will support regional economic vitality in Western Maryland by improving safety, reducing travel delay, restoring good condition of infrastructure, supporting economic development and reducing barriers for low-income residents to access jobs (see Table 5).



Figure 3: Current I-81 Pavement Conditions

Job Creation

The Council of Economic Advisors estimated that every \$1 billion in Federal highway investment supports 13,000 jobs for one year. Based on this rate, this project’s investment of \$81.3 million will generate 1,057 person-years of employment during construction. In the long term, the project will maintain the reliability of the interstate network in the region, supporting the continued development of manufacturing and distribution facilities in the project area. **These facilities support hundreds of jobs in the area** (Table 5), many of which are union jobs, and supply important opportunities to skilled and unskilled workers throughout the region.

Table 5: Jobs provided by Local Employers which will benefit from the Project’s Access Improvement

Pepsi Bottling, located on Elliott Parkway in Williamsport <i>Approx. 100 employees*</i>	Fives Landis on Halfway Boulevard <i>100 employees*</i>
UPS on Oak Ridge Drive <i>Approx. 270 employees*</i>	CertainTeed Corp. on Governor Lane Boulevard <i>275 employees*</i>
Roadway Express / Yellow Transportation on East Oak Ridge Drive <i>180 employees*</i>	Volvo Powertrain Production <i>1500 employees*</i>
Sealy Mattress on Elliott Parkway <i>115 employees*</i>	IKO Industries on IKO Way <i>40 employees</i>
Hitachi Rail <i>460 employees</i>	

*Unionized Employees

Estimated Freight Volume and Share

Averaging over 21,000 trucks per day, freight comprises 24 percent of all vehicles traveling on I-81, and freight volumes are expected to increase. The American Trucking Association estimates that freight volumes nationally will grow 3 to 4 percent over the next two years on average before settling down to the normal average of 1.5 to 2 percent growth thereafter. This projection reflects at least 7.5 percent growth in freight over the next three years and 10.5 percent growth over five years. This is supported by FHWA’s Freight Analysis Framework (FAF) forecasts, which foresee truck traffic on I-81 in Maryland to increase by more than 50 percent over the next 30 years to reach nearly 30,000 trucks per day by 2045. With this expected increase in both through freight traffic and other traffic types, it is critical to increase capacity in this corridor.

Improved Interactions between Roadway Users

I-81’s existing design creates dangerous weaving, merge and diverge conditions associated with closely-spaced interchanges. At 15 percent, crashes that occur on Maryland’s stretch of I-81 represent a disproportionate number of crashes in Washington County. This crash rate has been increasing in recent years, as shown in Table 4. The number of crashes averages 128 per year.

High truck volumes also lead to greater risk for serious crashes that can cause fatalities and injuries, as well as resulting in hours of backlog congestion. On I-81, over 30 percent of all crashes are related to trucks. Between 2015- 2019, the truck-related crash rate on I-81 was 13.2 crashes per 100 million vehicle-miles which is substantially higher than the 2015- 2019 statewide average rate for similar roadways (5 crashes per 100 million vehicle-miles).

Bottleneck Elimination in the Freight Supply Chain

The four-lane I-81 was originally designed to handle 15 percent truck traffic, and current truck volumes exceed 20 percent of total vehicles. This high growth in freight volume has created bottlenecks on the I-81 corridor and will continue to generate travel delays as new employers locate in this area. Overall traffic volumes on I-81 have also doubled in the past three decades, from 30,000 – 50,000 AADT in 1989 to over

71,000-74,000 AADT today. The MDOT SHA's statewide travel demand model projects AADT to be as high as 91,000 vehicles by 2045, representing a growth of nearly 17,000 total vehicles per day.

Freight movement needs reliable traffic operations with minimal delays. Existing warehousing businesses along Halfway Boulevard complain that during many hours of the day, their trucks are delayed getting onto I-81 and I-70 at nearby interchanges. With 22 percent growth in traffic volumes expected by 2045, this delay will only worsen.

The reduction in travel time for passenger vehicles and trucks resulting from both the additional lane, and the reduction in crash-related delay is expected to total over 211,000 person-hours and truck-hours annually (815 person-hours each weekday) by 2045. The travel time savings from the reduction in vehicle miles traveled is calculated to be \$20.0 million in discounted 2020 dollars.

Infrastructure Condition that Supports Commerce & Economic Growth

MDOT and Washington County expect that this Project will realize significant benefits in commerce and economic growth because the I-81 corridor has such high freight volumes and provides connections to many regional employers. Improvements to the capacity and condition of this corridor will improve efficiency, reduce delays and reduce damages to local road infrastructure affected by diverted traffic.

As the traffic volumes in the I-81 corridor are projected to continue to rise, the reduction in crash-related delays and traffic congestion will result in a decline in damages to local road infrastructure currently impacted by detours from I-81. The two-lane highway is prone to partial and full closure following an incident, diverting traffic to the local road network for an alternative route due to the lack of an adjacent highway or streets meant for large traffic volumes.

National or Regional Economic Development in Areas of Need

The Census tracts in the Hagerstown, MD-WV-PA Urbanized Area surrounding I-81 have high poverty rates, with 16 to 40 percent of tract populations living below the poverty level, compared to the US average of 12.3 percent. The average per capita income is \$26,633, compared to the Federal average of \$35,672, underlining the importance of expanding access to well-paying jobs in this rural area. The Halfway Boulevard interchange will create a new link between interstate interchanges on I-81 and I-70, opening land for development along this new road segment and expanding the supply of nearby jobs for communities in Washington County.

Incidents and associated delays on I-81 can cause significant economic losses for businesses along the corridor, such as the previously mentioned drop in Valley Mall sales at its hundreds of retail and restaurant businesses, noted in their letter of support. Volvo Group North America Chairman, Martin Weissburg has noted in Volvo's letter of support that "I-81 Corridor in Maryland no longer meets systems performance requirements, resulting in a disruptive bottleneck that negatively affects the movement of freight". The increase in capacity on I-81 will reduce economic losses associated with employees and supplies being stuck in traffic and will create opportunities for new employers to open in the region.

Connecting Workers to Employment Centers

Existing traffic delays on I-81 can make it difficult for employees to arrive at work on time. In addition to improving travel time reliability for workers driving from Washington County communities to jobs along I-81, the increase in capacity on I-81 and associated reductions in travel delay will also increase the reliability of transit on this corridor, expanding opportunities for residents without cars to access jobs. The Washington County Community Action Council operates the [Hopewell Express](#), a free transit service connecting predominantly low-income communities in Hagerstown directly to employers such as FedEx, Staples, and Tractor Supply. The Hopewell Express connects residents to jobs that do not require a post-secondary degree yet offer good wages with benefits for disadvantaged populations in the community.

Advancing the ROUTES Initiative

Consistent with the Department’s ROUTES Initiative, this Project will address the safety issues and infrastructure condition associated with this rural interstate with high share of truck traffic. The Project will expand rural communities’ access to jobs by improving travel time reliability for cars and transit. See [Section VII.3 \(Public Engagement\)](#) for additional information about the Project’s integration with the ROUTES Initiative.

V.4 Climate Change, Resiliency, and the Environment

On December 9, 2019, the Maryland Deputy Secretary of Policy, Planning, and Enterprise Services approved the MDOT Supporting Policy Document 606.4, Framework for a Sustainable Transportation System. This document establishes MDOT’s vision, commitments, and goals for a sustainable multimodal transportation system. MDOT Supporting Policy 606.4 was drafted and unanimously approved by the MDOT Sustainability Work Group, a guidance body with representatives from the planning and environmental offices of each TBU.

MDOT’s sustainability policy document was developed to help MDOT make decisions that balance the needs of community quality of life, environmental health, and a robust economy. While a sustainability framework includes key aspects of social equity, sustainability is not intended or designed to directly examine and address social inequity in its entirety. As such, MDOT’s Sustainability Program has identified potential evaluation criteria to measure the effectiveness of MDOT transportation services across all communities, which will then, in turn, support additional geography-based equity analyses.

This project specifically seeks to reduce the transportation system’s environmental impacts in three ways, described in the three sub-sections that follow.

Installation of EV Truck Charging Infrastructure

As companies increasingly expand their EV fleets, providing the charging infrastructure to support them is critical to encourage this growth. To that end, the Project includes two locations for EV charging that will encourage this growth while also offering a pilot opportunity to better understand the needs, concerns, challenges, and outcomes of this investment. AC&T, which will include a “fast charger,” responsive to the location’s higher turnover of vehicles; and Bowman, which will include four chargers that can be used throughout the day, but also overnight as it is a location that truck drivers can overnight their vehicles. The utility company in the region is ready to support this initiative and has confirmed that these locations can be powered. These investments will empower the project parties as well as private partners in the region to learn from this pilot, identify challenges, opportunities, and lessons learned to inform not only Maryland’s expansion of EV truck fleets, but also the industry at large. MDOT is committed to working hand in hand with private partners to monitor the success of these charging stations and report on key performance measures every two years beginning the after the first year of construction commences through the four years following construction completion.

The project partners understand that battery-electric trucks are not battery electric cars, but rather have unique needs, such as adequate parking space, appropriate charging hardware, and unique charging schedules and rates. Cooperation across diverse stakeholders is critical to the successful implementation and deployment of EV trucks and charging infrastructure. The lessons learned from this pilot will be shared with peers in the industry as well as provide opportunities to build new collaborative public-private relationship and partnerships. If awarded, this project will unlock an opportunity to pilot this important

“Our transportation services are critical for low-income residents that do not have transportation to get to work. We currently run a free shuttle from downtown Hagerstown to Hopewell Road (parallels) I-81 for employment purposes. The Hopewell Express is offered seven days a week, 24 hours each day to support businesses such as FedEx, Staples, Home Depot to mention a few.”

Geordie Newman
Community Action Council

This project supports Maryland’s continued commitment to protect their citizens, the environment and the state’s economy from the effects of climate change and will enable the state to reach its goals set out in the [Maryland 2030 Greenhouse Gas Emissions Reduction Act Plan](#) which was presented to and signed off by Governor Larry Hogan in February 2021.

work that will ultimately benefit state and local governments, commercial fleets and dealerships, energy providers, and hardware manufactures; together, these lessons learned will be shared with USDOT and benefit the industry at large.

Reduced Emissions

The I-81 capacity enhancements and improved connections will improve truck mobility and circulation during accidents and maintenance work on I-81, reducing emissions that occur today from slow speeds and idling. VMT will also be reduced, as there will be a substantial reduction in diversions. There are also opportunities to use additional detour routes when I-70 has an accident closure.

Environmental Design Elements

The design of I-81 undertaken in this project will implement SHA’s standard practices, including critical emphasis on stormwater runoff management. Adding lanes within the median also allows for retaining existing trees along this corridor. Finally, intelligent transportation system (ITS) elements, such as implementing dynamic messaging signs (DMS) to communicate with travelers regarding closures or congestion, providing travelers with alternate routes, serve to reduce greenhouse gas emissions.

V.5 Equity, Multimodal Options, and Quality of Life

The Project not only improves reliability and connectivity for freight vehicles, but also for residents in the project area to access local grocery and retail options and regional services and amenities. Notably, the project will improve access to jobs, services, and opportunities for those who use public transit and private employment shuttles in the project area.

Additional capacity from the Project will facilitate a more reliable transit corridor due to less congestion and reduced delays. As Hagerstown continues to grow as an employment center, and as the region sees a growing population (as well as a growing population of older adults), the need for reliable transit will only grow.

The Washington County Transit Department (WCT) operates all the public transit in Washington County, providing safe, affordable, dependable, and accessible service that enhances mobility in the area. The system runs eight fixed routes in and around Hagerstown. In addition, WCT provides transportation for the elderly and persons with disabilities through a ride assist voucher program. WCT also operates the Job Opportunity Access Program (JOBS) in cooperation with the Washington County Department of Social Services (WCDSS). The urbanized fixed-route service carries the majority of the County’s ridership. Total ridership averages over 516,000 passenger trips per year and all vehicles travel over 500,000 miles annually. These fixed routes overlap with the detour routes for I-81; detours that occur as a result of crashes or congestion on I-81 impacts on-time performance for the fixed route.

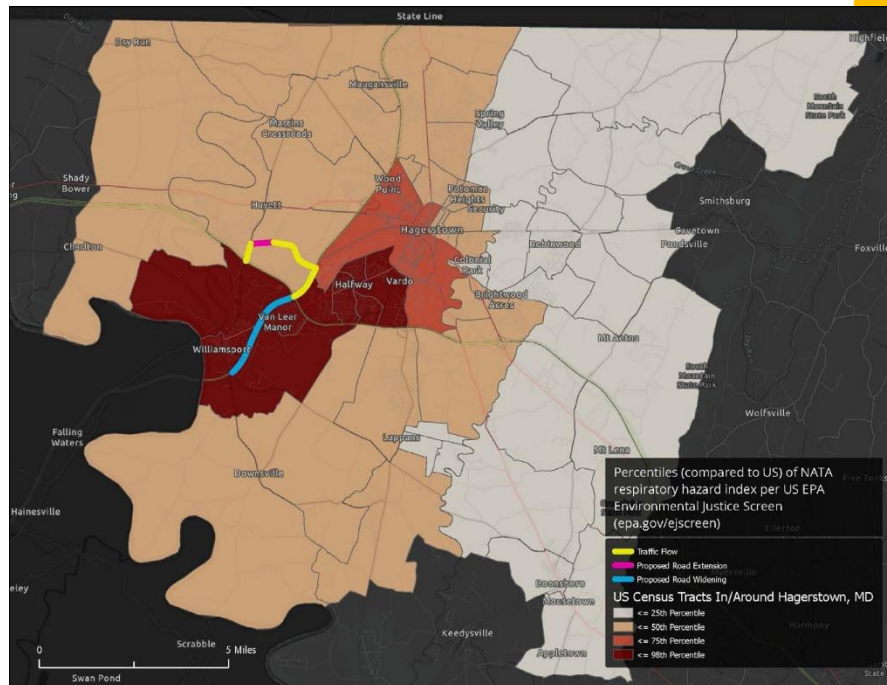


Figure 4. Environmental Justice Communities in the Project Area

This service is augmented by the [Hopewell Express](#), a free shuttle operated by the Washington County Community Action Council that provides employment transportation for employees in the Hopewell Road corridor. The Hopewell Express provides transit service in communities with very high poverty rates, with all bus stops concentrated in Census tracts in which per capita income is less than \$25,000. The Hopewell Express transports Hagerstown residents to the warehouse, distribution and manufacturing employers located off I-81. With over 80,000 passengers and nearly 127,000 trips in 2019, the Hopewell Express provides critical service to residents who would otherwise be unable to reach jobs. Heavy traffic, especially when caused by crash-related delays, is a barrier to the Hopewell Express' on-time performance and can jeopardize residents' ability to consistently arrive at work on time. The Project's improvements to I-81's safety and capacity will improve transit reliability and expand low-income residents' ability to access jobs. Additionally, the new interchange at Halfway Boulevard will enhance transit connectivity to I-81 by adding a connection to this area with growing employment opportunities.

Finally, the Maryland Transit Administration's 2020 Statewide Transit Plan – Draft prioritizes intercity transit between Hagerstown and nearby communities in Chambersburg, PA and Martinsburg, WV. This connection, which will utilize I-81, would serve the high volume of travel between Hagerstown and adjacent communities in West Virginia and Pennsylvania.

MDOT SHA plans to engage the public to ensure equity considerations are included in Phase 2 planning. Our approach to public engagement is outlined [later in this application](#).

V.6 Innovation Areas: Technology, Project Delivery, and Financing

The Project provides opportunities to meaningfully integrate innovative technologies, project delivery, and financing to more effectively, efficiently, and meaningfully advance the MPDG program's goals.

Innovation Area #1: Innovative Technology

Enhancements such as advanced traffic counters and dynamic message signs, focused on traffic incident management, bring both safety and reliability benefits but can also deliver environmental benefits such as reduced fuel consumption and emissions. This project will incorporate a predictive analytics program as a complement to MDOT SHA's already robust Coordinated Highways Action Response Team (CHART) incident management program. The approach collects data from existing sensors; this information is then combined with additional data from mobile apps, connected vehicles (CV), weather, and event management systems. Artificial Intelligence (AI) algorithms ingest, synthesize, and process this information to produce actionable insights and predictions for traffic safety and congestion management, improved response time for incident management, and provides an overall decrease in crash probability.

In a 2018 [Trucker Path survey](#), 85 percent of drivers cited parking as the number one cause of stress at work. 70 percent of truckers have had to violate hours of service (HOS) regulations to find parking and 96 percent have admitted to parking in areas not designated for trucks. In addition, 48 percent of drivers spend an hour or more a day finding safe truck parking, reducing productivity and costing truck drivers nearly \$5,000 a year in lost wages.ⁱⁱⁱ Through the new Halfway Boulevard interchange, this Project will improve access to a new, secure, 24-hour truck parking facility on Halfway Boulevard. Using smart phones, drivers can reserve a spot in this 170-space lot. With shorter, more reliable travel times to this facility, truck drivers will be able to increase their productivity while staying within their FMCSA hours of service limitations.

MDOT SHA will also incorporate information for this corridor in future CV roadway information messages (RIM) that will be developed and pushed out during the lifetime of this project. These messages, utilizing SAE J2735 formatted data, will be readable as future CV applications become available during the decade.

The Project also includes EV truck charging infrastructure as part of a novel pilot demonstration. Few EV truck charging stations in the nation are open to public use for freight EV, and this pilot will provide valuable lessons learned for other states interested in expanding EV truck charging infrastructure. See the section entitled, "[Installation of EV Truck Charging Infrastructure](#)" for a discussion on this project element.

Innovation Area #2: Innovative Project Delivery

The I-81 component of the Project will showcase innovations in environmental review and permitting and experimental project delivery. The Project planning phase concluded with a finding of no significant impact (FONSI) document approved by FHWA and concurrence from the environmental review/permitting agencies. However, the MDOT SHA is interested in participating in USDOT's new environmental and permitting approach and will use Special Experimental Projects Number 14 (SEP-14) tools to speed the pace of Project construction.

MDOT SHA also intends to deploy the planned advanced ITS equipment in conjunction with the construction activities of this Project, effectively 'bundling' projects to reduce schedules, costs and minimize travel disruptions.

All operations and maintenance on Maryland's state highways are performed by the MDOT SHA, including long-term rehabilitation work. With over 17,000 lane-miles to operate, the MDOT SHA is keenly aware of the critical need to maintain its system to safely and effectively move people and freight. The MDOT SHA is confident in its ability to deliver Phase 2 of the I-81 corridor widening on-time and on-budget. It is willing to condition construction funding upon meeting specific planning, engineering, and procurement deadlines. Table 6 shows how the MDOT SHA will structure conditions on the funding.

Table 6: MDOT Structure on Funding Conditions

Activity	Date	Percent Award Forfeited
Notice to Proceed	Spring 2024	5 percent (\$1.9M)
Substantial Completion	Winter 2026-2027	5 percent (\$1.9M)
TOTAL AWARD SUBJECT TO ACCOUNTABILITY GOALS		10 percent (\$3.8M)

Innovation Area #3: Innovative Financing

MDOT SHA is working closely with Washington County, which is contributing \$1 million to the Project. Also, and consistent with the 2020 TSMO Plan, MDOT SHA will implement strategies to improve data collection and to effectively monitor the performance of ITS and operational strategies within the corridor. This will improve investment decision making leading to lower cost strategies that yield greater benefits.

VI. BENEFIT-COST ANALYSIS SUMMARY

Table 7: Benefit Cost Analysis Summary

BCA Metrics	Undiscounted (2020\$)	Discounted at 7% (2020\$)
Total Benefits	\$201,985,010	\$61,422,027
Travel Time Savings	76,943,787	20,048,217
Safety	120,723,943	36,548,889
Agency O&M Cost Savings	\$4,317,280	\$4,824,921
Total Costs	84,922,677	57,039,823
Net Present Value (NPV)	\$117,062,333	\$4,382,204
Benefit Cost Ratio (BCR)	2.38	1.08

A benefit-cost analysis was performed, including the spending to date on the project as well as future project costs. Benefits were estimated for a 20-year period following construction. Following current USDOT BCA guidance, both costs and benefits were converted to 2020 dollars, and then discounted to 2020 using a 7% annual rate. As shown in Table 7, benefits clearly outweigh the project costs, even after discounting.

Most of the project benefits result from the safety improvements. The value of the estimated crash reduction (fewer fatalities, injuries, and property damage) is estimated at \$36.5 million over 20 years. Additional benefits from reduced crashes are also part of the estimated \$20 million in travel time savings. Travel time

savings include an estimate of the substantial reduction in crash-related delay expected to result from both the additional travel lanes, and the reduction in accidents.

VII. PROJECT READINESS AND ENVIRONMENTAL RISK

With an MPDG grant in place, the I-81 project is poised to implement crucial safety and congestion remediation and increase travel time reliability in this vital economic corridor. MDOT SHA and Washington County have the technical and financial capacity to undertake this project quickly and meet all milestones: MPDG funding will provide the final missing piece to unlock this project's positive impacts. This project has remained a state, regional and local funding priority for years, as demonstrated by this re-submission. To this end, potential risks have been identified and addressed as the project has continued to advance, making this a strong project worthy of high confidence.

VII.1 Technical Feasibility

The project partners have the technical experience and capacity to successfully advance the project in a timely manner and have accounted for potential risks in establishing the project schedule and budget. This project builds upon MDOT SHA and Washington County's previous experience, incorporating lessons learned as well as emerging technologies. In June 2016, the MDOT SHA issued a [Project Management Plan](#) (PMP) for the entire four-phase I-81 Project. The PMP provides a detailed description of the management systems and processes that will guide the full range of Project activities to ensure Project completion, as well as organizational roles and responsibilities and key staff.

Engineering and Design Studies, Activities, and Design Criteria

In 2010, MDOT SHA completed an I-81 corridor planning study, which resulted in a FONSI. Since 2010, MDOT SHA completed design activities for I-81 Phase 1, which it subsequently constructed. Beginning in 2017, MDOT SHA initiated Phase 2 design activities. To date, these activities have included investigations into innovative contract mechanisms by which to advance I-81 Phase 2 construction more quickly and for less cost. MDOT SHA has conducted traffic analyses, environmental inventories and analyses, noise analyses, stormwater management investigations, and ensured existing structures can be avoided where feasible. Washington County has completed environmental letters, a noise analysis, and wetlands analysis used within the CE letter for the Halfway Boulevard project.

The MDOT SHA uses the AASHTO design criteria for all its roadway projects as well as the Policy on Geometric Design of Highways and Streets, Policy on Design Standards Interstate Systems (DSIS), and AASHTO Roadside Design Guide (RDG). All controlling criteria are anticipated to meet AASHTO standards without the need for waivers.

Basis for the Cost Estimate

The MDOT SHA is currently in design to widen I-81 from a 4-lane divided highway to 6-lane divided highway from MD 63 to Halfway Boulevard. The design also includes improvements to the I-70 interchange ramps, addition of stormwater management facilities, drainage improvements, installation of noise barriers where necessary, and resurfacing through the project limits. The Project partners have extensive experience estimating the cost of similar projects and completing such projects on time and within budget. Standard tools and estimates were applied, including contingency levels appropriate to the Project's design status.

Title VI / Civil Rights Compliance

As a recipient of Federal financial assistance, all business units under MDOT are required to comply with Title VI of the Civil Rights Act of 1964 and other federal nondiscrimination laws and authorities. MDOT encourages, supports, and will monitor its TBUs, sub-recipients, cities, counties, contractors, and planning

agencies receiving federal aid funds. MDOT will implement the Title VI Program in accordance with all federal regulations, supported by our customer driven mission. MDOT’s Title VI program comprises:

- [MDOT Title VI Program Plan](#)
- [MDOT Title VI Policy & Assurances](#)
- [Title VI Notice to the Public](#)
- [Instructions for filing a Title VI Discrimination Complaint](#)
- [Title VI Complaint Form](#)

MDOT commits to promptly taking any measures necessary to effect compliance with Title VI of the Civil Rights Act. MDOT will include Title VI assurances in all written contracts and will monitor for compliance when distributing federal aid funds to other entities.

VII.2 Project Schedule

This project is ready to advance. MDOT SHA will have all necessary pre-construction activities completed by Spring 2024 and intends to obligate an MPDG investment for the construction of I-81 Phase 2 by Fall 2023, in advance of the September 30, 2025, deadline. Construction will begin before September 30, 2025.

Table 8: Schedule of I-81 Phase 2 Project Milestones

Milestone	Date	Funding Year
State and Local Planning Approvals (STIP, TIP)	Fall 2023	FY23
Obligation	Spring 2024	FY24
Completion of NEPA	Winter 2024	FY24
PI (30% Milestone)	December 2022	FY23
Semifinal Review (65%)	December 2023	FY24
Final Review (90%)	May 2024	FY24
CSX Final Bridge Approval	Winter 2024	FY25
ROW Acquisition	Summer 2024	FY25
PS&E (100% Milestone)	Winter 2024	FY25
Procurement	Spring 2025	FY25
Construction Start	Summer 2025	FY26
Construction Completion	Summer 2028	FY28

As a statewide priority, MDOT SHA now is actively advancing Phase 2 through the design and engineering process, and fully anticipates advertising a Phase 2 contract in Fall 2023. While design on Phase 2 officially commenced in 2017, the completed design and construction documents for Phase 1 provide MDOT SHA with efficiency during Phase 2. A Project schedule for I-81 Phase 2, including an anticipated contract award timeframe, is displayed in Table 8.

All necessary activities will be complete to allow MPDG grant funds to be obligated sufficiently in advance of the statutory deadline (September 30, 2025).

Further, any unexpected delays will not put the funds at risk of expiring before they are obligated. The project parties are committed and ready to begin construction quickly upon obligation of MPDG funds. This project is a high priority, and its positive impacts are pressing to the region. Consequently, the grant funds will be spent expeditiously once construction starts.

All real property and right-of-way acquisition will be completed in a timely manner in accordance with 49 CFR part 24, 23 CFR part 710, and other applicable legal requirements. Should additional right-of-way acquisition be necessary, MDOT SHA is prepared to do so in a timely manner.

VII.3 Required Approvals

Planning and environmental review for the entire Maryland I-81 corridor expansion is complete; final design for Phase 2 will be initiated once notice of MPDG grant award is received.

Environmental Permits and Reviews

NEPA Status

With permits and environmental approvals in place, this project is ready to construct. The MDOT SHA uses the Streamlined Environmental/Regulatory Process for the Project planning phase of the I-81 corridor study. The Project planning phase concluded with a FONSI document approved by FHWA, concurrence from the environmental review and permitting agencies on a preferred/selected alternative, and a corridor permit for wetland/waterway impacts. Any changes during subsequent phases of the Project will require only a re-evaluation of the NEPA document in 2022-2023 and an update of the corridor permit.

MDOT SHA followed NEPA regulatory requirements in preparing environmental review documentation for the I-81 corridor expansion program in Maryland and is ready to advance the project. Agency concurrence on the Purpose and Need was received in October 2001, and an EA was completed on September 15, 2004.

MDOT issued a FONSI/4(f) Evaluation document for the Project in 2010. A re-evaluation document was completed for Phase 1 in 2016, which enabled Phase 1 to be advertised for construction and to begin work in October 2016. MDOT SHA is ready to complete an environmental reevaluation for Phase 2 expeditiously following funding availability upon MPDG grant award, which is necessary prior to FHWA approving a reevaluation. Copies of the EA and FONSI are included in Appendix 7.

This Project presents an opportunity to mitigate existing environmental impacts from the original construction of I-81. The existing runoff on this segment of I-81 drains to median inlets and is conveyed to outfalls into roadside ditches and streams. The Project will add stormwater management facilities at the I-70 and Halfway Boulevard interchanges. In addition, median areas will be evaluated to try and maximize the impervious surface runoff treatment using grass swales and bioswales. Mitigation to wetlands and forests that are impacted by the Project is also being investigated.

Environmental Studies

The MDOT SHA will complete the permit and approval process for I-81 Phase 2 by 2023 assuming the project is awarded in 2022. The permits received for Phase 1, which should be similar to those required for Phase 2, include: Maryland Department of Environment (MDE) E&S Approval; MDE SWM Approval; NPDES Permit for Storm Water Associated with Construction Activity; MDE Non-Tidal Wetland Permit; MDE Water Quality Certification; US Army Corps of Engineers Permit; and the Maryland Department of Natural Resources Roadside Tree Permit. As noted above, Washington County has begun, and in some cases finished, coordination with state resource agencies regarding the Halfway Boulevard Extension.

Discussions with Department

MDOT SHA has raised this project preliminarily in its regular correspondence with the FHWA field office and is prepared to fully engage upon successful grant award to expedite coordination efforts. MDOT SHA coordinates on a monthly basis and has established communication channels upon which to build for this specific project as it advances.

Public Engagement

During the planning phase for the I-81 corridor project, MDOT SHA led public outreach efforts along the corridor. The team used the planning document from that process to develop the project included in this proposal. Following MPDG funding award, MDOT SHA will conduct an additional public meeting to introduce Phase 2 design activities to stakeholders.

This project will align with the rural focused ROUTES (Rural Opportunities to Use Transportation for Economic Success) program. The three main activities of that program are:

1. Collecting input from stakeholders on the safety and economic benefits that rural projects offer, as well as the type and degree of assistance rural projects require.

2. Providing user-friendly information to rural communities to assist them in understanding and applying for US DOT discretionary grants.
3. Improving US DOT's data-driven approaches to better assess needs and benefits of rural transportation infrastructure projects.

The collaboration will include a peer exchange with neighboring states (West Virginia, Virginia, Pennsylvania) and the I-81 Corridor Coalition. Incorporating a workshop or activity to engage the coalition or regional partners opens the door to new opportunities in exploring innovations in truck parking and routing as it relates to the project. Innovative communications and outreach will connect with locals and through-traffic.

The Project provides improved access for truck drivers traveling on I-81 and I-70 to reach repair services, fueling stations, and safe rest areas near Halfway Boulevard. Our stakeholder outreach will explore innovative ideas such as signage or including that info in a feed, project site, or app.

State and Local Approvals

MDOT SHA will ensure coordination with local planning authorities where necessary.

Federal Transportation Requirements Affecting State and Local Planning

The Project has long been in the transportation planning documents for the MPO and the state of Maryland, including the state freight plan; the project's incomplete funding package has delayed their advancement, but they remain high-priority projects for the state, the region, and the local jurisdiction. Specifically, components are included in the following:

- [HEPMPO FY 2021-2024 Transportation Improvement Program \(TIP\)](#)
- [MDOT FY 2022-2025 Statewide Transportation Improvement Program \(STIP\)](#)
- [DRAFT HEPMPO 2050 Long Range Transportation Plan](#)
- [MDOT 2040 Maryland State Transportation Plan](#)
- [Maryland Strategic Goods Movement Plan \(2017\)](#) and ongoing Maryland State Freight Plan update (2022)

Assessment of Project Risks and Mitigation Strategies

I-81 Phase 2 is an extension of previous work done by the MDOT SHA (I-81 Phase 1). It is also complementary to work that Washington County is currently performing to improve Halfway Boulevard. The I-81 Phase 2 project uses standard designs and materials and are therefore low-risk projects.

I-81 Component

Project risks for the I-81 improvements are discussed in the [Project Management Plan](#) and the [Financial Plan](#) (see Appendix 8). In addition, risk mitigation strategies have been fully delineated in detail for Phase 1 and will serve as a foundational baseline for developing the more formal risk mitigation strategy for Phase 2. The Phase 1 risk mitigation strategy is available upon request. Phase 2's minimal right-of-way needs, which currently involve no total property takes, should minimize risk. In addition, the project is well supported by the local business community, the City of Hagerstown, Washington County, the Hagerstown/Eastern Panhandle Metropolitan Planning Organization, and area elected officials.

"So I plead with you today with the most passionate voice I can, take this message back and get the funding for (the) 81 (project) to be completely funded today and save rural Washington County from being overrun with traffic."

Jeff Cline, President

Washington County
Commissioners

*Table 9: Potential Risks and Mitigation Strategies***Risk - Procurement Delays**

Continued Supply Chain challenges may have an impact in project timelines and meeting “Buy America” requirements

- Early coordination with vendors and expedited procurement process internally will allow time for potential delays
- Ample contingency has been incorporated in the project cost to allowed for potential increase in costs

Risk - Environmental Uncertainties

Potential impacts to Water of the US, wetlands, trees are possible

- The 2010 FONSI identified impacts to streams, wetlands, floodplains, and forest/woodlands. Stream and/or wetland impacts associated with the preliminary design were estimated to exceed the threshold at which mitigation would be required meaning that a mitigation site(s) would need to be identified. Additionally, reforestation was likely to be required per the Reforestation Act.
- Efforts were undertaken to avoid impacting the Greenlawn Cemetery (Williamsport) on the west side of I-81.
- The LOD was modified to avoid impacting the one public park in the project area. If the design changes such that the park is impacted, some level of Section 4(f) evaluation would be required.
- There were no hazardous materials sites or RTE issues identified in the 2010 FONSI.

Risk - Real Estate/ROW Acquisition

Fee Simple and temporary construction easements will be required for the project.

- No total takes are anticipated at this time. Any ROW acquisitions will be appraised and fairly compensated.

Risk -Historic Preservation

No elements of historic significance have been found within the project limits

- Cultural Resources investigations for Phase 2 were initiated in 2018; no historic standing structures were identified but we have not completed archeology or MHT concurrence on a Section 106 effect determination.
- If elements of historic significance are found, we will perform archeological studies and relocate the elements will be relocated, if possible, in accordance with the Maryland Historical Trust.

VIII. STATUTORY PROJECT REQUIREMENTS

1) The project will generate national, or regional economic, mobility, or safety benefit

The project’s BCA of 1.08 shows that the improvements to I-81 will support regional economic vitality in western Maryland. The project will enhance safety, reduce travel delay, restore good condition of infrastructure, support economic development and reduce barriers for low-income residents to access jobs. Congestion trends as documented in the [2040 Maryland State Transportation Plan](#) indicate that the travel time index (TTI) along I-81 will increase by more than 50% by 2040. The travel time index along I-81 is expected to be greater than 2. A TTI of greater than 2.0 indicates that a trip that takes ten minutes in light traffic would take 20 minutes in heavy traffic.

The project will reduce bottlenecks and reduce truck travel time delays by over 50,000 hours annually in 2045. Over the BCA’s 20-year analysis period, truck travel time alone has vehicle hours traveled with a discounted value of \$5.4 million. The improvements to I-81 are also projected to result in a decrease of 2 or 3 fatalities and 290 injury accidents in the project lifecycle, or 14 injuries per year.

2) The project will be cost effective

The project is expected to result in an undiscounted benefit-cost ratio of 2.38, and a discounted ratio of 1.08. See [Section VI. Benefit-Cost Analysis](#) and Appendix 9 for additional details.

3) The project will contribute to one or more of the national goals described under Section 150

- **Safety** - Within the project limits (I-81 Phase 2), total crashes increased 54 percent and truck crashes rose by 35 percent between 2015 and 2018. Crash data from 2015- 2019 show that the truck-related crash rate along I-81 is nearly 3 times the statewide average, with a crash rate of 13.2 compared to the statewide crash rate of 5.0. In fact, on I-81, over 30 percent of all crashes are related to trucks. The proposed widening and interchange upgrades realized through the grant investment will substantially increase freight volume capacity, lessen delay, and are expected to reduce the number of crashes in the I-81 corridor by at least 26 percent.
- **Infrastructure Condition** - As the traffic volumes in the I-81 corridor are projected to continue to rise, the reduction in crash-related delays and traffic congestion will result in a decline in damages to local road infrastructure affected by diverted traffic.
- **Congestion Reduction** - Operations on I-81 are affected by capacity constraints caused by the four-lane configuration which contributes to recurring peak hour congestion. In addition, crashes or construction activity can cause substantial delays. With an added lane in each direction, a single blocked lane of traffic will have a much lower impact on traffic delay. Congestion and merging traffic results in frequent sideswipe and read-end collisions and approximately 20% of crashes on the I-81 corridor involve trucks. The additional lane in the I-81 highway mainline will reduce dangerous weaving conditions and decrease total crashes by an estimated 26 percent, or over 700 crashes in the 20-year analysis period, for a discounted value of \$36.5 \$31.4 million.
- **System Reliability** - The 3.8 million person-hours traveled reduction in travel delay generated by this project has the potential to reduce barriers between workers and employment centers by improving travel time reliability, allowing workers to consistently arrive on time to work. The increase in capacity on I-81 and associated reductions in travel delay will also increase the reliability of transit service on this corridor. As such, the project will improve access to jobs, services, and opportunities for rural communities located along the corridor.
- **Freight Movement and Economic Vitality** - The I-81 corridor in Maryland is the backbone of freight connectivity for the region, providing nationally critical linkages along the East Coast, from Tennessee to New York. The 4-lane I-81 was originally designed to handle 15 percent truck traffic, and current truck volumes exceed 20 percent of total vehicles. This high growth in freight volume has created bottlenecks on the I-81 corridor and will continue to generate travel delays as new employers locate to this area. Freight moved in tons is expected to increase by roughly 70 percent over the next 25 years on major highway corridors, with SHA forecasts indicating approximately 30,000 trucks per day on I-81 by 2045 (major highway corridors are defined as those that carry at least 8,500 truck per day or more than 50 million tons per year). Also, the project area is a key connection with CSX Transportation at Hagerstown, where rail and roadway freight converge.
- **Environmental Sustainability** - The added lane will improve capacity along I-81, which will reduce congested related delays. This is expected to reduce greenhouse gas emissions through reduced vehicle idling and will reduce fuel consumption. Furthermore, the new EV charging locations included in the project will support and encourage the expansion of EV truck fleets by providing the necessary charging infrastructure in the project area, convenient to both I-81 and I-70.
- **Reduced Project Delivery Costs** - The deployment of the advanced ITS equipment in conjunction with the construction activities of this Project, effectively ‘bundling’ projects, will reduce schedules, costs and minimize travel disruptions.

4) The project is based on the results of preliminary engineering

Planning activities began in 2001, with the completion of a purpose and need statement and preliminary engineering and an [Environmental Assessment](#) was completed in 2004. In 2010, MDOT SHA completed a corridor planning study for I-81, which resulted in a FONSI. Since 2010, MDOT SHA completed design activities for I-81 Phase 1, which it subsequently constructed. Beginning in 2017, MDOT SHA initiated Phase 2 design activities. To date, these activities have included investigations into innovative contract mechanisms by which to advance I-81 Phase 2 construction more quickly and for less cost. MDOT SHA

has conducted traffic analyses, environmental inventories and analyses, noise analyses, stormwater management investigations, and ensured existing structures can be avoided where feasible.

5) One or more stable and dependable sources of funding and financing are available to construct, maintain, and operate the project, and contingency amounts are available to cover unanticipated cost increases

Three years ago, MDOT developed a Finance Plan and a Project Management Plan to ensure that the nearly \$400 million project could be completed. Phase 1 was completed at a cost of \$105.9 million. For Phase 2, MDOT has spent \$5 million for project planning and design costs and worked with Washington County to secure \$1 million in additional funds to support construction.

A contingency of 40% or \$22.6M has been allocated for this project.

6) The project cannot be easily and efficiently completed without other Federal funding or financing available to the project sponsor

1. How would project scope, schedule, and cost be affected if MPDG (or other Federal funds) were not received?

The project would not proceed until all necessary funds are in place to complete the project as scoped. Additionally, if delayed, the project cost would likely increase with increases to materials and labor.

7) The project is reasonably expected to begin within 18 months after the date of obligation of funds

MDOT SHA will have all necessary pre-construction activities completed by Spring 2024 and intends to obligate grant investment for the construction of I-81 Phase 2 by Fall 2023.

LIST OF APPENDICES

All appendices are housed on the MDOT website and can be accessed at the URL below.

<http://mdot.maryland.gov/INFRA>

Appendix 1: CTP, TIP, and LRTP – I-81

Appendix 2: I-81 Phase 2 Tech Project Engineering Drawings

Appendix 3: Project Management Plan for I-81

Appendix 4: Letters of Support & Commitment

Appendix 5: I-81 Cost Estimate

Appendix 6: I-81 FHWA Cost Estimate Review Final Report

Appendix 7: EA and FONSI for I-81

Appendix 8: I-81 Financial Plan

Appendix 9: Benefit-Cost Analysis Technical Report

ⁱ<https://www.heraldmillmedia.com/story/news/local/2022/04/18/fatal-crash-81-hagerstown-40-maryland-investigating/7360765001/>

ⁱⁱ <https://www.epa.gov/transportation-air-pollution-and-climate-change>

ⁱⁱⁱ Truck Parking Report. Trucker Path, July 2018