FY 2026 LARGE BRIDGE INVESTMENT PROGRAM

American Legion Bridge + I-270 Multimodal Improvements

Amendment No. 2 to the Notice of Funding Opportunity introduced new language under Section F.2.a.v ("Compliance with Federal Law and Policies") as follows:

> "The applicant assures and certifies, with respect to any application and awarded Project under this NOFO, that it . . . will cooperate with Federal officials in the enforcement of Federal law, including cooperating with and not impeding U.S. Immigration and Customs Enforcement (ICE) and other Federal offices and components of the Department of Homeland Security in the enforcement of Federal law (the Immigration Condition)."

Notwithstanding this language, please be advised that the State of Maryland is a plaintiff in a lawsuit challenging U.S. DOT's imposition of the Immigration Condition on federal funding as unlawful. See California v. U.S. Dep't of Transp., No. 1:25-cv-208 (D.R.I. filed May 13, 2025). On June 19, 2025, the court presiding over that action issued an order enjoining the imposition of the Immigration Condition on federal funding as to any Plaintiff State, including any subdivision or instrumentality thereof. In submitting this application, the Maryland Department of Transportation is subject to that court order, and this application should not be construed as a certification as to the Immigration Condition or as a waiver of any rights by the Maryland Department of Transportation or the State of Maryland.

I. BASIC PROJECT INFORMATION - PROJECT DESCRIPTION, LOCATION, AND PARTIES

Project Description: Maryland's portion of I-495 and I-270 are two of the most congested highways in the greater Washington Metropolitan area. Current traffic conditions across the American Legion Bridge continuously impede the efficient flow of people, goods, and services, hindering interstate freight and transit. The bridge opened in 1962 and serves as a vital connection between Maryland and Northern Virginia over the Potomac River. While structurally safe, the bridge will require extensive repairs within the next decade, including rehabilitation of the deck. This type of construction will be highly disruptive to the flow of traffic and will cause congestion on an already constrained link.

The Maryland Department of Transportation State Highway Administration (SHA) is proposing the American Legion Bridge + I-270 Multimodal Improvements project to address numerous safety, traffic, structural, multimodal, economic, and environmental issues, as shown in purple in **Figure 1**. The project corridor is approximately 6.5 miles of interstate and begins south of the George Washington Memorial Parkway (GWMP) on I-495 and extends north of Westlake Terrace on the I-270 West Spur.

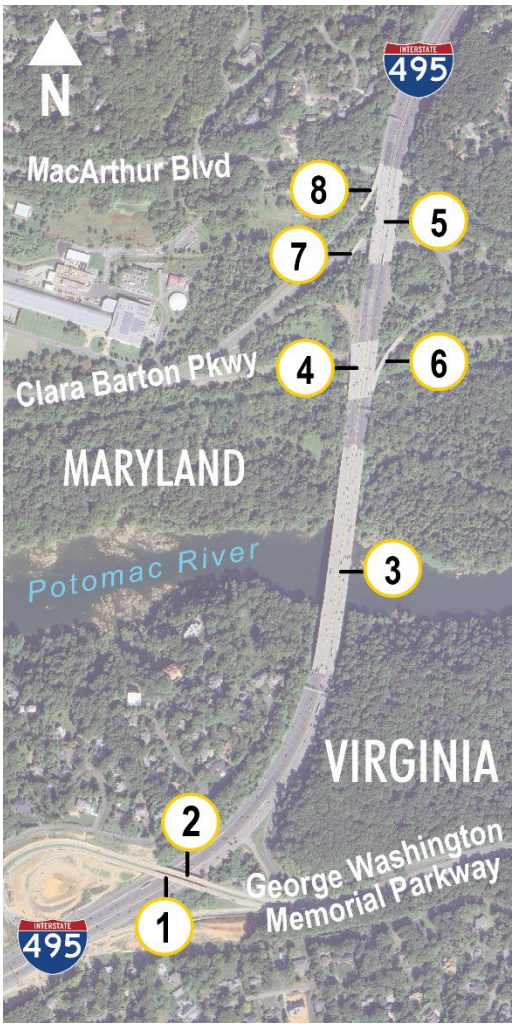
Figure 1. Project Location Limits

SHA seeks funding from the Large Bridge Investment Program (Large BIP) to improve the southern section that includes the American Legion Bridge, seven other bridges, and the adjacent interstate necessary to accommodate lane shifts/maintenance of traffic during construction–a length of 1.66 miles. As shown in **Figure 2**, the project include eight bridges located from GWMP to north of the bridge over MacArthur Boulevard. **Table 1** lists the bridge names and project numbers referenced throughout this grant application.

Table 1: Bridges in Large BIP Limits

Project Structure Number	Facility Description
1	WB GWMP over I-495
2	EB GWMP over I-495
3	American Legion Bridge
4	I-495 over C&O and Clara Barton Parkway
5	I-495 over MacArthur Blvd and Clara Barton Parkway
6	I-495 Inner Loop ramp to EB Clara Barton Parkway
7	WB Clara Barton Parkway ramp to I-495 Outer Loop
8	I-495 Outer Loop ramp to WB Clara Barton Parkway over MacArthur Blvd

Figure 2. Proposed Bridge Improvements



I-495 and I-270 are key elements of the regional and national transportation system. Every day, hundreds of thousands of travelers rely on I-495 and I-270 to get to their jobs, access goods and services, enjoy recreational areas, and return safely to their homes. Two of the top four freight bottlenecks in the region are located along I-495 and I-270, and eight freight bottlenecks are located along the larger I-495 network resulting in delays in the movement of people, commodities, and freight to local and regional markets.[1] These bottlenecks also negatively affect the mobility of the armed forces, as these interstates are recognized as part of the National Highway System and the National Highway Freight Network. The Department of Defense (DoD) classifies I-495 and I-270 as Strategic Highway Networks (STRAHNET), routes that provide defense access, continuity of government, and emergency capabilities for the movement of personnel and equipment in times of both peace and war,[2] including connections to numerous military installations in both Maryland and Virginia. Maintaining these corridors is therefore vital to the economic health, mobility, and defense of our nation.

[1] https://www.mdot.maryland.gov/OPCP/MDOT_State_Freight_Complete_2022_12_06.pdf
[2] https://www.sddc.army.mil/sites/TEA/Functions/SpecialAssistant/STRAHNET/_STRAHNET%20101.pdf

As part of SHA's effort to address persistent mobility and traffic challenges, traffic count studies were performed in both corridors, which found that the average annual daily traffic along the I-495 corridor is 253,000 and projected to increase to 289,000 by 2045. Along I-270, the average annual daily traffic is 259,000 and projected to increase to 308,000 by 2045. Additionally, according to the Metropolitan Washington Council of Governments (MWCOG) 2022 Congestion Management Report,[3] the I-495 at I-270 West Spur is among the top ten bottlenecks in the region.

SHA completed the I-495 & I-270 Managed Lanes Study per the National Environmental Policy Act (NEPA) to address the mobility challenges along both corridors. In tandem with Virginia's I-495 Northern Extension (495NEXT) project, which also focused on implementing multimodal strategies, SHA provided a comprehensive approach to improving mobility within the National Capital Region. As part of the Study, SHA identified the first phase to be implemented as the section from south of the GWMP on I-495 (connecting to the 495 NEXT project) to north of Westlake Terrace on the I-270 West Spur. The NEPA Study resulted in a Record of Decision in August 2022 with a Selected Alternative that included a two-lane High Occupancy Toll (HOT)-managed lane network on I-495 and I-270.

The project will include the addition of two HOT lanes in both directions on I-495 and the conversion of the existing High Occupancy Vehicle (HOV) lane plus an additional HOT lane along the I-270 West Spur. SHA will therefore maintain the same number of free, general-purpose lanes as exist today throughout the study limits that are open to all users. Buses, vanpools, and carpoolers with three or more passengers will be able to utilize the new HOT lanes at no charge, providing faster, more reliable transit service and encouraging the use of carpooling and vanpooling in the region to daily destinations. MDOT is actively engaging with the public to guide additional multimodal operating investments on the corridor that may utilize the HOT lanes to include MTA commuter bus service. Single occupant vehicles who choose to use the HOT lanes will be required to pay the toll. The funds generated from the tolls will provide funding for transportation improvements throughout the corridor, including supporting regional expanded transit opportunities, that would not be funded otherwise.

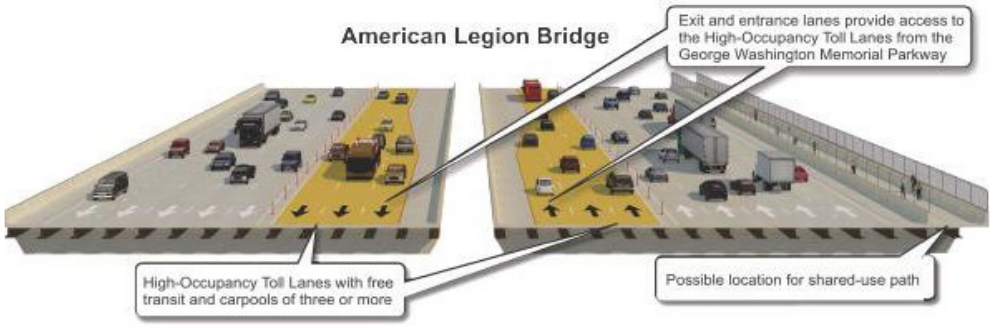
The Washington Metropolitan Area Transit Authority (WMATA)'s Better Bus service redesign initiative proposed medium-frequency, all-day service and low-frequency overnight regional connector services that would operate along I-495 and use the American Legion Bridge. In its 2025 unfunded visionary network, WMATA proposes route MD 240 that would travel from Tysons Corner to Bethesda, utilizing the American Legion Bridge.[4] In its response to public comments, WMATA notes congestion on ALB being a concern and this project would help to alleviate this. In addition, the Fairfax County Department of Transportation's Fairfax Connector Route 798 express bus service began in 2024 between the Tysons and Bethesda WMATA rail stations. Both services would benefit from a reconstructed and updated American Legion Bridge.

The project directly aligns with the goals of the Large BIP to improve the safety, efficiency, and reliability of freight and multimodal travel over bridges. It will also provide cost-effective accommodation for bicycles and pedestrians and improve bridge conditions that do not meet current geometric design standards nor traffic requirements typical of the regional transportation

[3] https://www.mwcog.org/documents/2022/07/08/congestion-management-process-cmp-technical-report-congestion-management-process/
[4] https://www.wmata.com/initiatives/plans/Better-Bus/upload/BBNR_Phase-2-Comment-Response-Summary-2.pdf

network.

Figure 3. American Legion Bridge Typical Section



Source: Maryland State Highway Administration

While this project includes the replacement of multiple bridges in the corridor, the American Legion Bridge is the largest bridge that SHA continues to identify deficiencies on and therefore intends to reconstruct it. The bridge is currently rated in fair condition for the superstructure and substructure; however, it is anticipated to drop into poor condition within a three-year period unless the deck is replaced and the concrete deterioration is addressed. In addition, the bridge does not meet current roadway and structural design standards, nor does it accommodate the significant existing traffic demands. The parapets on the new structure will be detailed to meet the latest impact requirements for interstate structures (MASH 2016 TL-5) and the structural steel details will be designed to reduce fatigue concerns and have infinite fatigue life based on the latest guidance and known behavior of steel structures. The new bridge, shown in **Figure 3**, will be widened to accommodate future traffic growth, and designed to meet current standards, providing a facility in a state of good repair.

Safety is of the utmost concern for SHA and this project. A crash analysis was performed within the area of the eight bridges for the five-year period from 2019 through 2023 and identified approximately 1,242 crashes within the Large BIP limits. Nineteen percent of these crashes resulted in injuries and fatalities, with 72% of crashes being rear-end or sideswipe collisions on heavily congested roadways. The proposed project will reduce congestion levels during peak periods and accommodate the future increase in traffic, thereby mitigating the unstable flow and stop/go conditions on the roadways, leading to a reduction in the potential for congestion-related crashes. Ultimately, the goal of the project is to ease travel burdens for all users, increase travel time reliability, and ensure a safe and efficient network for travelers.

SHA has studied environmental, community, and historic impacts of the project and evaluated solutions to minimize impacts to these important resources. In the NEPA Study, SHA considered multiple alternatives and published a Draft Environmental Impact Statement (DEIS) in 2020, which received 3,000 public comments. In response to public feedback, any additional alternatives were studied, resulting in the development of a Supplemental DEIS (SDEIS). The SDEIS reflected SHA's conscious effort to respond to stakeholder feedback and proactively address any community or environmental impacts. Every effort was made to coordinate with the National Park Service (NPS) to minimize or avoid adverse impacts to three park service areas in Maryland and Virginia located within the vicinity of the American Legion Bridge. These NPS areas included the George Washington Memorial Parkway, the Clara Barton Parkway, and the Chesapeake & Ohio Canal National Historic Park. In addition to these NPS properties, SHA will make every effort to minimize the impacts to the Maryland-National Capital Park and Planning Commission (M-NCPPC) parkland located within the project area.

The Final EIS was published in June 2022 and provided responses to over 5,000 comments on the DEIS and SDEIS, with the Record of Decision issued by the Federal Highway Administration (FHWA) in August 2022. The project is currently in design; the final design and construction will be completed through two Design-Build (D-B) contracts. Contract A will include the Large BIP limits within the section from the George Washington Memorial Parkway to south of Seven Locks Road. It will be advertised in July 2026 with contract award/notice to proceed issued in July 2027 to begin final design and construction. Contract B will run from south of Seven Locks Road to the project terminus north of Westlake Terrace. It will be advertised in April 2027, with the respective contract award/notice to proceed to be issued in April 2028. Based on the outlined scheduled, it is estimated that both contracts will be open to traffic by 2034.

Project Location: The project corridor begins south of the GWMP on I-495 in Fairfax County, Virginia, connecting to the 495 NEXT project and runs to north of Westlake Terrace on the I-270 West Spur, see **Figure 4**. The American Legion Bridge is the critical connection across the Potomac River and the latitude/longitude coordinates for the bridge are 38.969149 / -77.179369.

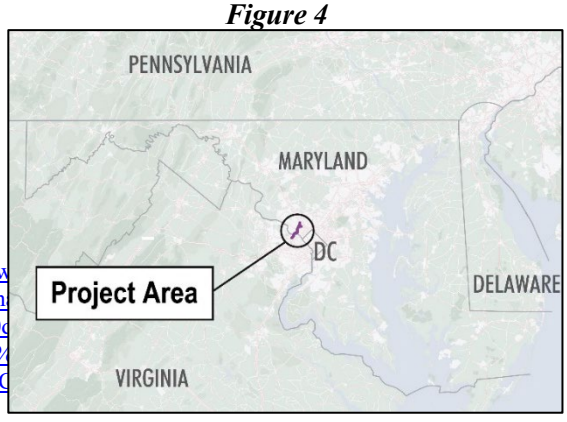
Located within boundary of 2020 Census-designated Urbanized Area: For purposes of this Large BIP grant, FHWA considers communities that are within urbanized areas (population > 50,000) to be urban communities. This urbanized area is called *Washington-Arlington-DC-VA-MD*.[5]

Maintenance: SHA is responsible for maintaining the project, including bridge inspections, superstructure/substructure maintenance, routine maintenance of deck (joints/appurtenances), deck renewals and overlays of the general purpose and HOT lanes. SHA is also responsible for the maintenance of the roadways, both general purpose and HOT lanes. SHA oversees a robust Asset Management Program that will include these improvements, to ensure the assets are continuously improved and optimized to provide a safe, well-maintained, and reliable transportation system.

Cost-effective Accommodations for Bicycles and Pedestrians: A new 14-foot shared-use path across the American Legion Bridge will provide for greater multimodal connectivity for bicyclists and pedestrians alike. It will serve as a conduit for people to access multiple parks, nationally and locally recognized historic sites, residential areas, and employment centers in the region. This expansion of multimodal connections is consistent with the improvements and priorities identified in the Montgomery and Fairfax counties' Master Plans. SHA finds these improvements to be cost reasonable and aligned with FHWA guidance.

Asset Management Plan: SHA maintains a robust asset management practice and policy, managed by the Asset Management Office (AMO) that is responsible for guiding the SHA Asset Management Program toward optimal performance, using risk-based resource allocation to maintain all roadway assets.

Figure 4



II. NATIONAL BRIDGE INVENTORY

The eight project bridges included in this Large BIP grant application are in the National Bridge

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%2F29%2F2022-28286%2F2020-census-qualifying-urban-areas-and-fin
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Inventory in Tab 8 of the Excel spreadsheet where it lists 51 different items and categories in the columns for each bridge. The bridges listed in **Table 2** have geometric features that are below current design standards. Because the traffic is projected to increase, the six bridges with shoulder widths and/or clearances that are below standard will further impede the traffic. Additionally, as a result of the substandard shoulder width, they will not accommodate emergency vehicle access along the shoulders, disabled vehicles, or the ability for errant vehicles to correct when needed.

Table 2. Bridge Location and Structure Number

Project Struct. Number	Facility Description	Latitude	Longitude	Bridge Structure Number	Condition Rating
1	WB GWMP over I-495	38.964	-77.182	000000000006202	Poor
2	EB GWMP over I-495	38.964	-77.184	000000000006200	Poor
3	American Legion Bridge	38.969	-77.179	100000150100010	Fair
4	I-495 over Clara Barton Pkwy and C&O Canal	38.972	-77.179	100000150142010	Fair
5	I-495 over Clara Barton Pkwy and MacArthur Blvd	38.974	-77.178	100000150104010	Fair
6	I-495 Inner Loop ramp to EB Clara Barton Pkwy	38.972	-77.179	100000150101010	Fair
7	WB Clara Barton Pkwy ramp to I-495 Outer Loop	38.975	-77.179	100000150103010	Fair
8	I-495 Outer Loop ramp to WB Clara Barton Pkwy over MacArthur Blvd	38.976	-77.179	100000150143010	Fair

III. PROJECT BUDGET–GRANT FUNDS, SOURCES & USERS OF ALL PROJECT FUNDING

SHA is currently developing a comprehensive financial plan for the 6.5-mile-long American Legion Bridge + I-270 Multimodal Improvements project. The total cost for the eight bridges and necessary approach interstate (1.66 miles) in this BIP application is $1,728,074,000. SHA is committed to meeting the required match for future eligible costs for the project, through project or other state sources, Maryland Transportation Trust Fund sources such as federal-aid formula funds, toll credits, or other state funds such as toll revenue backed debt. In addition, SHA will explore the use of the Transportation Infrastructure Finance Innovation Act (TIFIA) Program to borrow funds that would be repaid with state funding from toll revenues. SHA is exploring scenarios to close potential funding gaps, including seeking state legislative authorization to issue grant anticipation revenue vehicles (GARVEEs) against future formula funding for this project. MDOT successfully issued $750 million in GARVEE bonds on the Intercounty Connector, which have all been repaid, and MDOT currently has no outstanding GARVEE bonds.

For this Large BIP grant application, SHA is requesting $864 million for the eight bridges and approach interstate, which is 50% of the total cost. **Table 3** presents the proposed full funding for the project, including how the requested Large BIP funding fits into the plan.

Table 3. Funding Sources

Funding Sources	Total Dollars	Percentage

	(in millions)	
(1) Non-Federal, State Match	$ 172.81	10.0%
(2) Federal Large BIP Funds	$ 864.04	50.0%
(3) Other Federal Funds	$ 691.23	40.0%
Total Project Funding	**$ 1,728.07**	**100.0%**

As the project moves toward construction, SHA has developed comprehensive cost estimates for the total costs. **Table 4** presents the nominal (escalated) value of Contract A construction costs, assuming a construction timeframe from 2027-2033. The estimate was developed in accordance with the FHWA CSRA process and includes a detailed risk analysis. The final design and construction costs were informed by market pricing information that the State receives from its project bids, including design-build contracts, inflation estimates that are regularly updated by SHA, quantities based on a design of 30% or greater for various technical design elements, anticipated design-build contractor contingency, and markup based on market precedent.

Table 4. Capital Cost Estimates

Category	Costs (in millions YOE)
Preliminary	$148
Grading/Earthwork	$33
Drainage/SWM	$71
Structures	$881
Roadway/Pavement/Shoulders	$36
Mitigation and Landscaping	$14
Traffic/ITS	$37
Utilities	$8
NEPA/ROD Commitments	$42
MDOT Oversight	$60
Design, Engineering, and Quality Management	$150
Right-of-Way	$26
CSRA Risk	$222
Total	**$1,728**

Right-of-way acquisition costs include the estimated needs based on the limits of disturbance from the Final EIS. They also include natural resource mitigation land. Additionally, the outcome of the CSRA process resulted in the Owner's Contingency Risk valued at $222 million (included in Table 4) for the limits of the Large BIP. These contingencies reflect a comprehensive evaluation of potential risk exposure where the risks and unanticipated costs are best borne by SHA. SHA is also continuing design, permitting, utility coordination, and other due diligence activities targeted at reducing potential risk exposure.

IV. MERIT CRITERIA

1. State of Good Repair

SHA is pursuing Large BIP funding to replace and modernize the American Legion Bridge and seven other bridges in the southern section of the I-495 and I-270 corridor. The project will improve the present condition of the bridges, bringing them into a state of good repair and alignment with current geometric design standards. The project will also accommodate current and

anticipated traffic volumes to increase the mobility and accessibility for people and goods, lower maintenance costs and create long-term resiliency for these bridges in the event of natural disasters and hazardous weather.

The American Legion Bridge is approaching its useful physical life and has exceeded its structural steel fatigue life. If the bridge was designed for 2,000,000 fatigue cycles, a common number of cycles at the time of the original design, that would mean each lane would be limited to 90 trucks per day over the past 60 years. Given the current average daily truck traffic, each direction of the bridge sees almost 8,500 trucks per day; if evenly distributed between the 5 lanes, each lane sees approximately 1,700 trucks per day–well above the expected fatigue life capacity. The design life for highway bridges built in the 1960s is typically 50 to 75 years, meaning that the original portion of the bridge, built in 1963, is approaching the upper limit of its design life. Similarly, the widened portion of the bridge, built in 1984, is nearing the range for its design life at approximately 40 years old. A National Bridge Inspection Standards report from 2023 found that both the superstructure and substructure of the bridge are rated in fair condition. For the superstructure, the report identifies section loss and rust holes that have been painted over, cracking in lateral bracing gusset plates, and arrested fatigue cracks, as well as concerns with bearings, anchor bolts, and bearing pedestal conditions. For the substructure, the inspection report notes large areas of cracked, spalled, and delaminated concrete with exposed reinforcing steel. In addition, replacement of the bridge deck is needed. Based on these current conditions, the bridge is anticipated to drop into poor condition within a three-year period unless the deck is replaced, and the concrete deterioration and fatigue cracking is addressed.

The existing bridge structural steel has several fatigue-sensitive details that are no longer routinely detailed on steel bridges. Fatigue-sensitive details are elements on a structure that are likely to develop cracks under cyclical loads, i.e. truck traffic, due to their configuration or the way in which they were constructed. The fatigue life of the American Legion Bridge has been reached due to an increase in traffic demands compared to the assumptions made for truck traffic when the bridge was originally designed. In many locations on the American Legion Bridge, cracks have developed in the steel connections at these details, requiring repairs and retrofits. Many locations have been repaired, but with each inspection cycle, new cracks are discovered.

All project bridges were also found to have fallen short of current geometric design standards resulting in congestion and traffic issues. Structures 1 and 2 are currently rated in Poor condition, while Structures 3 through 8 are rated in Fair condition. SHA established standards for all bridges over arterial roads or freeways for a vertical under-clearance of 16’9” and for all bridges over collectors and local roads of 15’0”. The minimum typical section on structures is 32’0” and the bridge lane and shoulder widths should match the approach roadway and shoulder widths. Structures 1 through 8 (see Section II – National Bridge Inventory), all are below standard for bridge shoulder width and bridge vertical under-clearance, with Structure 6 being below standard for bridge shoulder width. This not only impedes the flow of traffic now and in the future, but also restricts the ability for emergency vehicles, disabled vehicles, or errant vehicles to correct when needed. SHA will rebuild and update all lane and shoulder widths, as well as enlarge vertical under-clearances for the new bridges with this project.

SHA will therefore design and implement structures built to withstand worse-case conditions, upgrading the American Legion Bridge into today’s standards for scour protection including:

- Locating piers to minimize obstructions to flood flows to minimize the scour potential;
- Designing structures to be stable for worst-case conditions for the scour design flood;
- Verifying that the bridge piers remain stable for conditions of the scour check flood.

SHA remains confident in its administration of transportation infrastructure assets and is considered a national leader in asset management policy and practice. SHA is a national leader in asset management policy and practice. SHA is home to a dedicated Asset Management Office (AMO) responsible for guiding the SHA Asset Management Program toward optimal performance, using risk-based resource allocation to maintain all roadway assets in a good state of repair. SHA maintains more than 75 types of transportation assets across 14 critical asset classes with a total replacement value of more than $39 billion. This program continually prioritizes asset needs based on age, condition, criticality and risk. It implements standards, improves systems and data, fosters collaboration and strengthens institutional knowledge. Bridge asset management is the responsibility of SHA's Office of Structures.

This commitment to asset management is paying dividends. Maryland is among the national leaders in bridge condition, with just 2.76 % of NBI deck area rated Poor in 2022. The SHA Transportation Asset Management Plan, developed pursuant to 23 USC 119€, is a risk-based plan to improve and preserve the condition of the National Highway System in Maryland. Bridge investment strategies in the Plan include monitoring structures on the edge of "state of good repair" and high-risk bridges more closely. Due to its size and present condition, the American Legion Bridge meets both criteria.

Table 5 summarizes the ways in which this project will directly implement four strategies identified in MDOT's 2021 Transportation Asset Management Plan (TAMP) for monitoring risk, principles which are easily applied by SHA in advancing this project.

Table 5. Project Risk Strategies

Risk Mitigation Strategy	Application in This Project
Avoid or minimize risk through proactive management strategies	• Identify and anticipate upcoming need for ALB replacement • Apply for federal funding to leverage state resources to maintain the critical asset
Assign higher priority to risk-prone assets that require replacement	• Recognize that replacement of the ALB will be complex, disruptive, and expensive
Mitigate assets by clearly identifying performance measures and outcomes that impact asset resilience and exposure	• The ALB and I-270 investment has measured analyzed, and will mitigate existing performance issues including access, safety, resilience, and potential exposure to advanced deterioration or failure
Collaborate with partner agencies and stakeholders to manage and monitor risks	• MDOT SHA has engaged in a robust public engagement plan to solicit meaningful feedback and collaboration, incl. most recently four public meetings in Fall 2023.

Additionally, the TAMP found that Maryland faces a $60 million annual funding gap to maintain NHS Bridge conditions through 2031. This project will incorporate toll financing providing more than $800 million in user generated revenue to support upgrade of the corridor. Toll revenues and lowered maintenance costs of the new bridge will allow Maryland to use limited dollars elsewhere

in the state to help achieve the pavement and bridge state of good repair goals. Leveraging toll revenues and potentially federal funds for this project will help Maryland achieve its goals of at least 24.8% of NHS bridges in good condition and no more than 2.6% of NHS bridges in poor condition in 2030.

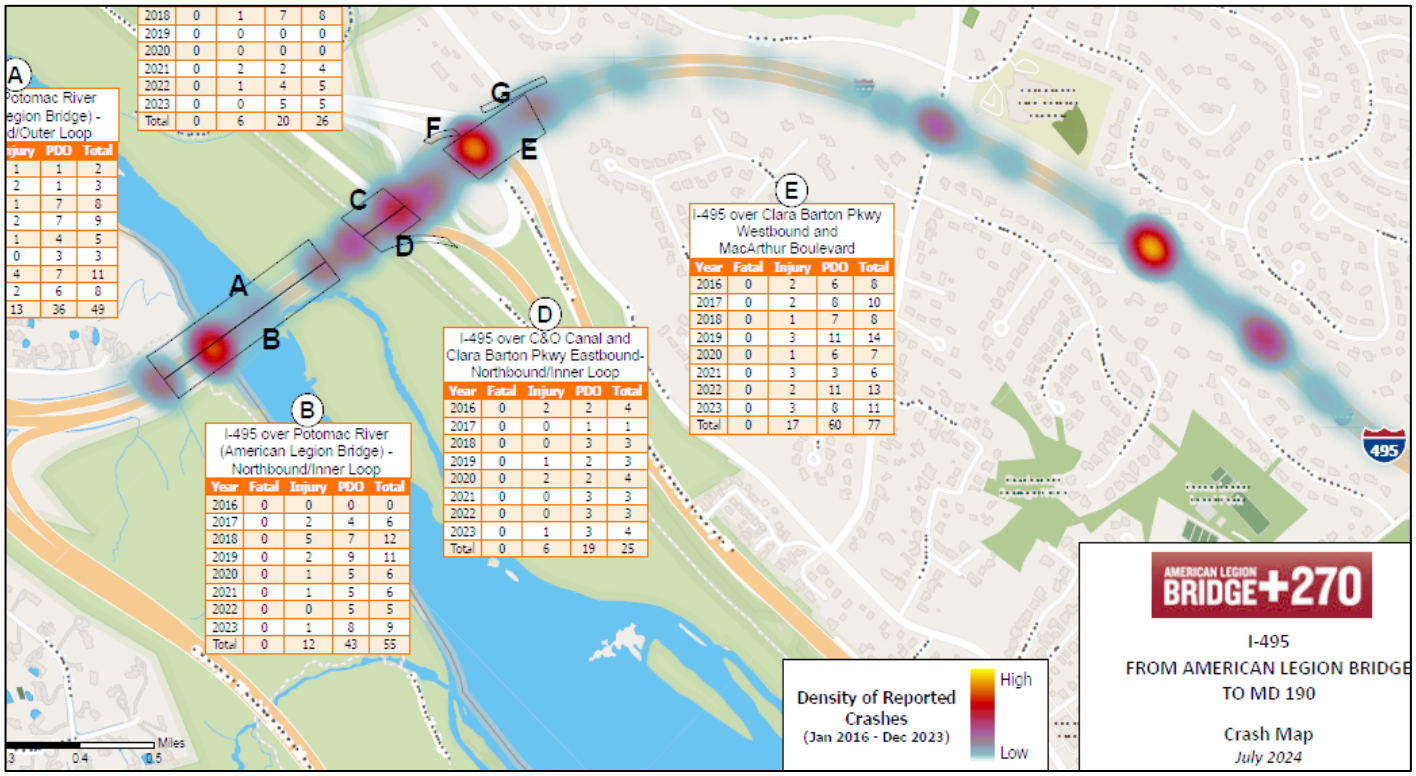
2. Safety and Mobility

A detailed safety evaluation was conducted for the I-495 and I-270 corridors for the full length of the American Legion Bridge + I-270 Multimodal Improvements project, shown in **Figure 1**. The project corridor is approximately 6.5 miles long and begins south of the GWMP on I-495 and runs north of Westlake Terrace on the I-270 West Spur. The crash data was collected from January 2016 through December 2018 and is the latest three-year period where a full safety analysis was completed for those project limits. Additionally, more recent crash data was obtained for the eight bridges and adjacent interstate (1.66 miles) included in this Large BIP grant application from January 2019 through December 2023 (note that 2023 data should still be considered preliminary). All of this crash data was obtained from SHA's Office of Traffic and Safety (OOTS). They process, review, and summarize crash data from the Maryland Automated Crash Reporting System (ACRS), which is the singular source of all traffic crash data in Maryland that is reported by the MD State Police, MDTA Police, and local law enforcement departments for cities, towns, and counties in the state. The data includes fatal, injury, and property damage crashes along the highway, ramps, and crossroads, including the crash location, date/time, conditions, type/manner of impact, and any contributing circumstances. Both crash frequency and rates were reviewed to identify high crash locations and trends.

The crash data for the bridges included in the Large BIP grant are shown in **Figure 5** and include 1,242 crashes. This data shows 19% of the crashes included fatal, injury and property damage crashes along the freeways and ramps for the eight bridges, with 72% of crashes being rear-end or sideswipe collisions on heavily congested roadways.

The limits along I-495 included in this Large BIP is a critical part of the 6.5-mile-long American Legion Bridge + I-270 Multimodal Improvements project. Therefore, SHA is also including the safety and mobility evaluation for the full project corridor as it factors into the broader picture of how crashes will also be improved. From January 2016 through December 2018, nearly 1,000 crashes occurred over the three-year crash period on the west side of I-495 and the I-270 West Spur

Figure 5. Crash Location Map by Density



mainline as part of American Legion Bridge + I-270 Multimodal Improvements. Nearly 30% of these crashes resulted in injuries and fatalities, with 75% of crashes being rear-end or sideswipe collisions, which are often attributed to congested conditions. More than half of these crashes occurred during peak periods when traffic demand is highest (i.e., 6:00 AM to 10:00 AM and 3:00 PM to 7:00 PM, as defined by the data and operational analyses[6]). Furthermore, 23% of segments within the 6.5-mile project limits have a crash rate higher than the statewide average, with some segments more than triple the statewide average. These crashes significantly affect the efficiency of the corridors for both automobile and freight traffic. Research studies, including those conducted by the National Highway Traffic Safety Administration[7], suggest that the unstable traffic flow during congested operations increases the probability of rear end and sideswipe crashes. The high proportion of rear-end and sideswipe crash types, along with the high occurrence of crashes during peak travel periods, show a strong correlation between the existing congested highway conditions and the safety performance of the corridors. In addition to the congested conditions, weaving movements were also identified as a contributing factor to the high number of crashes.

Each of the interchanges within the Large BIP limits and the full Multimodal Improvement area were analyzed to determine how to provide safety and operational efficiency improvements. Based on the methodologies outlined in the *Highway Safety Manual*, a predictive crash analysis was used to provide a quantitative analysis of how the improvements will impact safety performance. The predictive tools included the Enhanced Interchange Safety Analysis Tool, which is used for the

[6] https://oplanesmd.com/wp-content/uploads/2022/11/MDOT-SHA-Application-for-IAPA-August-2022.pdf
[7] https://www.nhtsa.gov/document/analyses-rear-end-crashes-and-near-crashes-100-car-naturalistic-driving- study-support-rear

predictive crash analysis of mainline freeway segments, interchange ramps, acceleration lanes, crossroad ramp terminals and intersections, and crossroad segments within the project area. A safety analysis process developed for the Virginia I-495 NEXT Express Lanes project was also used for the predictive crash analysis for the portions of the Large BIP in Virginia. Traffic data, historical crash data, and roadway geometrics were used as inputs for developing the safety model. The predicted crash analysis was performed separately for the mainline/ramps and the managed lanes facilities. Since the managed lanes will be new lanes operated separately from the general-purpose lanes, the predicted safety analysis process is not able to show a reduction in crashes in those lanes—it can only show a comparative reduction to existing lanes. Based on the proposed geometric conditions and traffic volumes, safety analysis predicts the following:

- Crashes along the I-495 ramps in Virginia (General Purpose and HOT) will decrease by **25%**, with a **28%** decrease in fatal and injury crashes;
- Crashes along the I-495 ramps in Maryland (General Purpose and HOT) will decrease by **7%**, with a **13%** decrease expected in fatal and injury crashes; and
- Crashes along the General Purpose lanes on the West Spur will decrease by **10%**, with a **16%** decrease in fatal and injury crashes. Combined with ramps and the new HOT lanes, the overall West Spur facility will see a decrease of **3%** in fatal and injury crashes (note this bullet does not include limits for the Large BIP).

In addition, new pavement and resurfacing will improve friction along the roadway portions between bridges and help to mitigate wet-weather crashes, which represents 17% of crashes. Multimodal improvements including a barrier-separated bicycle/pedestrian facility on the American Legion Bridge and constructing accessible sidewalks, shared use paths, and bike lanes will provide additional options and improve safety for pedestrians and cyclists.

An operational assessment was performed to determine the operations in Build and No Build conditions. For the horizon year of 2045, the speeds, densities, and Level of Service will continue to be improved throughout the network, enhancing both safety and mobility. In the Build condition, nearly 20% more throughput will be accommodated than in the No Build on the American Legion Bridge. Many segments of general-purpose lanes will experience an improvement in 2045 average speeds during the AM and PM peak periods, with HOT lanes operating at 45 mph or better on average. Specifically, 66% of trip pairs in the peak periods will experience a benefit from traveling in the general-purpose lanes under the Build versus No Build conditions. Total traffic delays will be reduced by 20% system-wide across the 2045 four-hour PM peak period and by 10% across the four-hour AM peak period. Delays on the surrounding local roadways will be reduced, including a 2.23% reduction in arterial delays in Montgomery County.

As demonstrated through the operational analysis, the project will reduce congestion levels—particularly during peak periods, address the needs of the system, and accommodate existing traffic and long-term traffic growth on I-495. By reducing the extent and duration that the highway and local roadways operate under congested, unstable flow and stop-and-go conditions, the potential for the congestion-related crashes will be significantly reduced, particularly during peak periods.

The project will also include Intelligent Transportation System (ITS) devices that will collect real-time data and measure speeds along the highway. These devices can be connected to an active warning system to alert motorists to downstream roadway conditions, such as congestion and slow speeds. This monitoring will be very beneficial for driver information systems, such as triggering

messaging/signing to motorists. This project will include an active warning system with elements such as queue detection and warning messages that has been found to reduce crashes.[8]

3. Economic Competitiveness and Opportunity: Supplemental Information

The State of Maryland heavily invests in workforce development programs to train the next generation of skilled workers, providing them with a head start to good jobs and job wages made available through the Workforce Hubs Initiative and its newly announced Road 2 Careers program. The Road 2 Careers program supports training and apprentices to increase the skilled workforce available in the transportation sectors. This program uses Registered Apprenticeship, Pre-Apprenticeship, and Integrated Education and Training models to prepare job seekers for careers such as skilled trade workers, equipment operators, and welders. MDOT appreciates the partnership to date with FHWA in utilizing 23 USC 504(e) funding to advance this program and our shared commitment with the Administration to support the creation of jobs. To this end, MDOT's CTP for FY 2025-2030 allocates $4M annually to support Marylanders in helping to rebuild American infrastructure in the state of Maryland and in the greater Washington metropolitan region.

SHA has a strong record of developing apprenticeships in the construction industry. The On-the-Job Training Program helps contractors develop full journeyperson status for individuals in the highway construction industry. In partnership with the Maryland Department of Labor, MDOT and all of its modal agencies participate in the State of Maryland's Transportation Apprenticeship Workgroup. Upon concluding its first year, the Workgroup established apprenticeship programs across five of MDOT's modal units: Transportation Secretary's Office, State Highway Administration, Port Administration, Transit Administration, and Transportation Authority. Apprenticeship programs are also available in IT Cybersecurity, Heavy Equipment Maintenance Technicians, and Bus Maintenance Mechanics. Training programs such as these not only provide opportunities for individuals to gain valuable, life-long skills in the trades, but they also help employers maintain or exceed the proposed workforce representation goals in their contracts.

Land-use productivity and private development remain integral to spurring economic growth in the region. As such, there are almost 60 available properties that are directly adjacent to the two corridors within and north of the study area and dependent on them for access and connectivity. These properties range from office space to industrial sites and, when developed, will increase employment opportunities for residents of the region; as shown in the Montgomery County zoning map, the most prevalent land use in the study area outside of intersection/interchange areas is residential.[9][10] An analysis of job accessibility was undertaken using the regional travel demand model. This accessibility analysis focused on the AM peak period and showed that with the project in place, there was improved accessibility for traffic analysis zones (TAZ) in both Maryland and Virginia. The analysis also shows a reduction of 35,000 hours in delay across the region on both the arterial and freeway systems.

Freight mobility is another vital aspect of the project in bolstering the regional economy, with trucking being the largest contributor of all freight modes. According to the FHWA Freight Analysis Framework (FAF), significant truck volumes move through the project area along I-495

[8] https://mobility.tamu.edu/mip/strategies-pdfs/active-traffic/technical-summary/Queue-Warning-4-Pg.pdf
[9] https://governor.maryland.gov/news/press/pages/governor-moore-announces-maryland%E2%80%99S-commitment-to-the-baltimore-workforce-hub-highlights-local-job-creation-economic-opport.aspx
[10] https://mcatlas.org/zoning/

and I-270, as commodities are transported along the I-95 corridor with volumes projected to increase by 53% in volume and 108% in value by 2050.[11] Truck volumes within the project area along I-495 and I-270 range between 10,000 and 20,000 trucks per day.[12] In addition, the MWCOG 2022 Congestion Management Report identified the junction of I-495 at I-270 Spur as one of the top ten bottlenecks in the region.[13] By addressing congestion with the addition of the HOT lanes and easing congestion in the general-purpose lanes, and also addressing the significant bottleneck, the corridors within the project area will operate more efficiently and provide better mobility for the freight movements through the region. The State Freight Plan estimates that Maryland suffered $251 million in overall freight congestion costs in 2019 which, similar to the statewide total congestion cost for all vehicles, generally reflects an increasing trend for the time 2015 through 2019. The travel demand model analysis shows a 20% decrease in hours of delay along the corridors in 2045.

In addition to improving freight mobility, supporting economic vitality, and national security, the project also improves the multimodal transportation systems within the region. Transit mobility is enhanced with transit vehicles allowed free use of the HOT lanes, providing an increase in speed of travel and trip reliability for transit trips, as well as connections to the regional Metrorail system and local bus service on arterials directly connecting to urban and suburban activity and economic centers, and job opportunities.[14]

The aerospace and defense sectors are a significant component of the state and regional economy. Defense spending creates economic activity through the attraction and support of related industries and investments, generating important state and local revenues. According to the US Department of Defense (DOD), as of 2021 there were a total of over 96,000 DOD active, reserve, and civilian personnel in Maryland. The defense spending comprised almost 6% of the state's Gross Domestic Product, generated over $8 billion in payroll, and almost $18 billion in contracts awarded.[15] There are numerous US and state military installations in the state and in addition to the installations in Maryland, there are also numerous military installations in Virginia. I-495 and I-270, both designated as STRAHNET facilities, provide vital connections between military installations for the movement of personnel, supplies, and equipment. The efficient connectivity between these installations in the region is of vital importance to this important economic sector, as well as national security. Maintaining the efficient operations of these routes is of both national and regional significance, supporting economic vitality, access to employment, and freight mobility.

4. Sustainability, Resiliency, and the Environment

Maryland is fully committed to managing air quality and pollution more generally, and the state has worked cooperatively with experts from state and local agencies, academic institutions, among others, to quantify and understand the extent and scale of pollution derived from motor vehicles. The project is therefore part of an approved regional air quality model. Statewide analysis indicates the HOT lanes will not impede the ability to meet the state's air quality goals.[16] The project is also

[11] https://www.mdot.maryland.gov/OPCP/MDOT_State_Freight_Complete_2022_12_06.pdf
[12] https://www.mwcog.org/documents/2010/07/28/national-capital-region-freight-plan-freight
[13] https://www.mwcog.org/documents/2022/07/08/congestion-management-process-cmp-technical-report-congestion-management-process
[14] https://oplanesmd.com/wp-content/uploads/2022/06/MLS_FEIS_00_ExecutiveSummary_June-2022p-2.pdf
[15] https://www.repi.mil/Portals/44/Documents/State_Fact_Sheets/Maryland_StateFacts.pdf
[16] https://oplanesmd.com/wp-content/uploads/2022/06/MLS_FEIS_05_Environmental_June-2022p-2.pdf

part of the approved regional air quality model.

SHA coordinated extensively with state and federal partner agencies to minimize and mitigate environmental impacts from the project, as part of the NEPA study. Consequently, the project completely avoids significant Maryland-National Capital Park and Planning Commission's sensitive stream valley parks and minimizes impacts to George Washington Memorial Parkway, C&O National Historical Park, and Clara Barton Parkway. The project also avoids all business and residential displacements including the historic Morningstar Tabernacle No. 88 Moses Hall and Cemetery. SHA worked tirelessly over four years to minimize impacts to parks, NPS lands, wetlands, floodplains, waterways, cultural resources, and forest canopies.[17]

The existing I-495 was built prior to the enactment of the 1972 Clean Water Act and does not meet current Maryland stormwater management standards. The project will address stormwater management for all new impervious areas and 50% of the existing disturbed impervious area. The changes from the project will result in a net benefit to the water quality in the immediate area, as well as downstream in the Potomac River and Chesapeake Bay. The peak runoff rates will be limited to the existing runoff rates for most storms; more frequent storms should see a reduction of runoff rates because of the stormwater management improvements. In addition, several existing eroded or unstable channels will be stabilized throughout the project area.[18]

The project will also utilize nature-based and lower carbon construction solutions, called Environmental Site Design (ESD), to the maximum extent practicable (MEP) to minimize environmental impacts. Throughout the corridor, the roadside ditches will incorporate bioswales to filter and slow runoff, as well as allow infiltration when soil conditions are appropriate. In this project, bioswale ditches will predominately replace traditional ditches. This approach allows for treatment close to the source and minimizes impacts to neighboring communities by reducing off-site land required and improves the resiliency of at-risk highway infrastructure.

To achieve better outcomes for communities and the environment, an American Legion Bridge Strike Team was formed to find solutions to minimize impacts. The Strike Team focused on alternative bridge designs and construction techniques because of the proximity of the bridge to NPS lands and the Potomac River. This Strike Team, comprised of technical experts from across the country, reviewed design approaches and identified an innovative bridge design to reduce the footprint of the replacement bridge and incorporate stormwater management facilities that provide both water quantity and quality treatment within the same footprint, avoiding placing them on NPS land. This innovative approach was undertaken in response to the coordination that occurred between SHA and the NPS and other agencies.

5. Quality of Life

A crucial part of the project was SHA's comprehensive outreach effort to ensure that all populations had equal access to the study information and to identify and address any potential impact. Supplemental outreach was undertaken to ensure all communities were provided with adequate opportunities to discuss any issues and in various formats. These included online information, local pop-up events at local gatherings such as farmers markets, as well as face-to-face interviews and discussions with participants.[19]

[17] https://oplanesmd.com/wp-content/uploads/2022/06/MLS_FEIS_05_Environmental_June-2022p-2.pdf#page=2
[18] https://oplanesmd.com/wp-content/uploads/2022/06/MLS_FEIS_03_Preferred-Alternative_June-2022p-1.pdf#page=14
[19] https://oplanesmd.com/wp-content/uploads/2022/06/MLS_FEIS_08_PI-Agency-Coord_June-2022p-1.pdf

The outreach efforts collected recommendations on community improvements that could be included as part of the project.[20] From the outreach efforts, community concerns were raised regarding improved sidewalks and bicycle facilities, better lighting, and traffic calming. To address these concerns, SHA has committed to working with the City of Rockville, City of Gaithersburg, and Montgomery County to improve the community and quality of life for its residents. The project will correct a variety of deficiencies related to the Americans with Disabilities Act (ADA) compliance.

The project will abide by all SHA Bicycle Policy and Montgomery County Complete Streets criteria, providing additional bicycle and pedestrian accommodations. These improvements include replacing or upgrading existing pedestrian and bicycle facilities impacted by the project, ensuring that the newer facilities will be consistent with local master plans and previously identified priorities. Furthermore, the project will incorporate a new pedestrian and bicycle shared use path on the American Legion Bridge and connect with the existing multiuse paths on the Maryland and Virginia banks of the Potomac River.

To further enhance multimodal mobility options and quality of life, additional focus areas include:

- Free use of new HOT lanes for transit vehicles, carpools, and vanpools with 3 or more occupants;
- Working with the local governments to expand transit fare subsidies for low-income riders;
- Support new transit connections to include the Fairfax Connector Route 798, beginning service in 2024, and WMATA's proposed Better Bus all day and overnight services;
- Determination of MTA commuter bus and/or MARC Brunswick line commuter rail service starts or service increases;
- Improving accessibility to employment, educational and other services with expanded bicycle and pedestrian improvements, including new and upgraded facilities;
- Upgrading existing transportation facilities by replacing or rehabilitating all existing bridges on or over I-495 and I-270 within the project area;
- Rehabilitating/resurfacing existing general-purpose lanes.

Furthermore, an analysis of job accessibility was undertaken using the regional travel demand model. By focusing on the AM peak period, it was demonstrated that with the project in place, there would be improved accessibility for traffic analysis zones (TAZ) in both Maryland and Virginia. The analysis also showed a reduction of 35,000 hours of delay across the region on both the arterial and freeway systems.

In addition to better outcomes for traffic, this project will also improve the multimodal transportation systems within the region, including carpooling and transit. By incorporating free use of HOT lanes, the speed of travel would increase, promote trip reliability for multimodal trips, as well as connections to the regional Metrorail system and local bus service on arterials directly linking to urban and suburban activity and economic centers.[21] These improvements would also include a cost-effective shared use path across the American Legion Bridge connecting Maryland and Virginia, which would subsequently provide additional access to federal and local park lands,

[20] https://oplanesmd.com/wp-content/uploads/2022/06/MLS_FEIS_08_PI-Agency-Coord_June-2022p-1.pdf
[21] https://oplanesmd.com/wp-content/uploads/2022/06/MLS_FEIS_00_ExecutiveSummary_June-2022p-2.pdf

including a direct connection to the historic Chesapeake & Ohio Canal. This direct connection minimizes the impact to NPS lands, as well as to natural resources.

6. Innovation Areas: Technology, Project Delivery, Financing

Innovation occurs throughout this project on multiple levels and with multiple agencies. For project delivery, SHA will use the method of design-build (D-B). With D-B, the owner manages a single contract with the D-B entity including a unified project team where the designer and the contractor work together as a team to better fit the owner's schedule and budget. Potential changes are comprehensively addressed through a collaborative effort by the full team.

It is expected that D-B project delivery will accelerate the overall schedule and provide reduced cost and schedule growth that will provide better certainty for delivery on time and on budget. According to FHWA, the D-B method accelerates project delivery and is a preferred innovative project delivery mechanism, without impacting environmental commitments. For this project, SHA estimates that D-B project delivery will accelerate the overall schedule by an estimated 15 months, with a D-B delivery in 111 months from concept design through construction compared to 126 months for a Design-Bid-Build delivery.

Studies have shown that D-B results in less cost growth and schedule growth. For example, the study Comparison of D-B to DBB on highway projects in Washington State noted that cost and schedule growth on D-B projects is less than that on similar size design-bid-build projects.[22]

During the Managed Lanes Study, SHA organized the American Legion Bridge Strike Team that was tasked to investigate alternative bridge designs and construction techniques due to the adjacent Potomac River and the park lands in the corridor. The Strike Team reviewed design approaches and identified an innovative design to reduce the footprint of the replacement bridge. In addition, the Team incorporated stormwater management facilities that provide both water quantity and quality treatment within the same footprint in coordination between SHA, the National Park Service, and other agencies. SHA also identified trenchless technology which would allow culverts to be installed underground without disturbing the existing roadway and disrupting travel.

As a result of the Strike Team effort, the overall impacts were substantially reduced. These impacts are quantified in the **Table 6**, which compares the environmental impacts in the vicinity of the American Legion Bridge from the Draft Environmental Impact Statement (DEIS), which pre-dates the Strike Team effort, through to the post-Strike Team impacts from the Final Environmental Impact Statement (FEIS).

Table 6. Comparison of Impacts from DEIS to FEIS

Resource	DEIS	FEIS	Difference	
			Number	%
NPS Park Properties (acres)	16.18	9.66	-6.52	-40.3%
Live Trees (each)	1,108	803	-305	-27.5%
Forest Canopy (acres)	17.74	11.78	-5.96	-33.6%
Waters of the US (acres)	8.81	8.25	-0.56	-6.4%
Waters of the US (linear feet)	3,830	3,263	-567	-14.8%
Wetlands (acres)	0.78	0.56	-0.22	-28.2%

[22] https://pdfs.semanticscholar.org/ebdd/b31b037f95f3e73ce14e2b8bfa787877fbe9.pdf

Floodplain (acres)	22.22	10.89	-11.33	-51.0%

Innovations were also incorporated into public engagement efforts, particularly during Covid. Such techniques like online/virtual public meetings were held to review the project information. For those unable to attend the virtual meetings, the options for reviewing project materials were held at typical meeting locations, such as local libraries, however, in the parking lots rather than inside. These drive-up meetings were available on weekdays and weekends with both daytime and evening opportunities.[23]

HOT lanes were also developed to incorporate technology throughout the corridor so as to provide users with up-to-date information. Tolls will be collected electronically using overhead gantries, so there are no toll plazas or toll booths. Fiber will be installed throughout the corridor for communication purposes, as well as ITS and toll systems. Typically, there are redundant runs to ensure no loss of communications. The fiber also prepares the corridor for future uses as connected and automated vehicles are integrated.

The Managed Lanes project will be the first in Maryland to use dynamic pricing to help manage severe congestion, assist in financing the construction of the project, and enable the future of connected and autonomous vehicles (CAVs) on the roadways. Congestion is a significant issue and continues to limit transit options along the corridor, causing bus routes to be cut due to low ridership as the buses sit in congestion. By implementing toll lanes, users will be incentivized to carpool and vanpool by providing a 100% discount. This will also allow buses to travel free in the managed lanes, thereby increasing the daily throughput of people in the corridor. In anticipation of the arrival of connected and automated vehicles (CAVs), in 2021, MDOT published the Connected and Automated Vehicles Implementation Plan for fiscal years 2021-25, outlining a strategy to accommodate and innovate the use of CAVs on Maryland's roadways. This plan also considers how managed lanes will provide an opportunity for CAV advancement, and in tandem with the project, will bolster the use of technologies that will assist with congestion mitigation including cutting edge detection and analysis components that could communicate directly with CAVs, providing real-time information to enhance corridor safety. Additionally, the project will allow trucks to use the managed lanes, thus supporting future truck platooning capabilities to improve the safety and efficiency of freight mobility. The implementation of congestion pricing incorporates technology throughout the corridor. The project will also deploy traveler information systems to provide information to travelers on roadway conditions.

V. BENEFIT-COST ANALYSIS

In 2023 dollars, the project is expected to generate $2,608.3 million in discounted benefits using a 7.0% discount rate. When compared to total discounted costs of $1,483.1 million, this results in a Net Present Value (NPV) of $1,125.2 million and a Benefit Cost Ratio (BCR) of 1.76 as summarized in **Table 7**. This analysis reflects the latest version of the BCA Guidance released in May 2025 and includes detailed data analysis to support benefit estimates consistent with U.S DOT mandate to conduct rigorous economic analysis and cost benefit calculations.[24]

[23] https://oplanesmd.com/wp-content/uploads/2022/06/MLS_FEIS_08_PI-Agency-Coord_June-2022p-1.pdf

[24] [24] U.S. Department of Transportation. Ensuring Reliance Upon Sound Economic Analysis in Department of Transportation Policies, Programs, and Activities. January 2025. *https://www.transportation.gov/sites/dot.gov/files/2025-02/DOT_2100.7Ensuring_Reliance_Upon_Sound_Economic_Analysis_in_DOT_Policies.pdf*

Table 7: Summary of Benefit Cost Analysis Results, Millions of 2022 Dollars

Bridge	Total Benefits	Total Costs	BCR	NPV
American Legion Bridge	$1,795.6	$816.5	2.20	$979.1
Clara Barton East	$292.1	$163.4	1.79	$128.7
Clara Barton South	$2.7	$20.6	0.13	-$17.8
MacArthur Clara B	$293.9	$309.1	0.95	-$15.2
Clara Barton CO Canal	$8.3	$41.0	0.20	-$32.7
MacArthur Blvd	$2.0	$31.4	0.06	-$29.4
GWMP Over 495 A	$187.4	$33.7	5.56	$153.7
GWMP Over 495 B	$26.2	$67.4	0.39	-$41.2
Total	**$2,608.3**	**$1,483.1**	**1.76**	**$1,125.2**

The overall cumulative impacts and the direction of change resulting from the project can be seen in **Table 8**. Cumulatively across the project benefits period, the project is expected to save motorists nearly 294.0 million person-hours and 198.4 million vehicle-hours of travel. The project improvements are also estimated to avoid 52.6 fatal crashes and nearly 3,000 injury crashes.

Table 8: Project Impacts, Cumulative 2033-2052

Impact	Unit	Reduction	Direction
PDO Crashes	crashes	8,009.7	↓
Fatal Crashes	crashes	52.6	↓
Injury Crashes	crashes	2,994.8	↓
Vehicle Miles Traveled - Auto	million-miles	5,326.3	↓
Vehicle Miles Traveled - Truck	million-miles	427.9	↓
Person Miles Traveled - Auto	million-miles	8,096.0	↓
Person Miles Traveled - Truck	million-miles	427.9	↓
Vehicle Hours - Auto	million-hours	183.7	↓
Vehicle Hours - Truck	million-hours	14.8	↓
Person Hours - Auto	million-hours	279.2	↓
Person Hours - Truck	million-hours	14.8	↓

VI. PROJECT READINESS AND ENVIRONMENTAL RISK

a. Technical Feasibility and Technical Competency

SHA has a long history of managing complex projects from concept development/preliminary engineering, through final design, right of way acquisition, and construction. The agency is responsible for over 18,000 lane miles or roads and ramps, over 2,500 bridges, and a total budget of over $1.5 billion, of which $713.4 million are federal dollars. SHA also has the institutional knowledge of how to manage and administer federal funding, utilize established protocols and procedures for meeting applicable federal requirements, including project feasibility, constructability, and compliance with Title VI/Civil Rights requirements, ADA regulations, Buy America provisions, Relocation Assistance and Real Property Acquisition Policies under the Uniform Act, and the technical capability to manage the delivery of this complex project.

The Technical work includes conceptual design to a level of at least 30%, including horizontal and vertical roadway geometrics, multi-modal studies and concept design, preliminary structure (bridges, retaining walls, noise barriers, culverts, etc.) layout and conceptual design, geotechnical evaluations, concept stormwater management, conceptual hydrology and hydraulic analyses, noise studies and conceptual barrier layout, conceptual traffic/ITS engineering, conceptual tolling, and conceptual utility design and coordination to support the preparation of the environmental documents and toward development of D-B contract documents. Work also included the assessment of the overall feasibility of the project, phasing, risk, schedule, cost, operations and maintenance evaluation, and impacts (e.g., environmental resources, utilities, right-of-way, etc.)

In support of the concept design and preparation of environmental documents, technical work also encompasses topographic and property surveys, field investigations (e.g., utility designation and test pitting, soil borings, pavement testing, CCTV of drainage pipes, etc.), design criteria and technical requirements development, environmental permitting and agency coordination, traffic forecasting and analyses, risk identification/tracking and mitigation, constructability reviews and impact minimization, cost estimating, scheduling, landscape and aesthetic guideline development, and extensive project stakeholder coordination. Key deliverables include project technical requirements; existing roadway, pavement, soils, structures, survey, right of way, utilities, environmental, hazardous material, and other data collection; project concept plans; concept stormwater management; tolling scenarios; feasibility, phasing, operations, and maintenance plans; traffic projections and analyses; interstate access approval report; quality assurance and quality control plan.

b. Project Schedule

The project will be implemented through two concurrent design-build contracts, with the first contract (Contract A) covering the southern portion of the project limits from south of the George Washington Memorial Parkway (GWPM) on I-495 in Virginia to south of Seven Locks Road in Maryland. The BIP limits are contained completely within Contract A and extend from the southern limit to north of MacArthur Blvd. The second design-build contract (Contract B) will extend from south of Seven Locks Road on I-495 to north of the Westlake Terrace Interchange on the I-270 West Spur. **Table 9** provides the schedule for concurrent contracts.

Table 9. Schedule for Overall Project (with Blue Text highlighting the BIP limits)

Schedule Item	Contract A Southern Portion including American Legion Bridge	Contract B Northern Portion
Grant Agreement / Obligation of Funds #1 for: Contract A (ROW, Environmental Mitigation) Contract B (ROW, Environmental Mitigation)	January 2026	
Right-of-Way Acquisition	July 2026 – September 2028	
Design-Build RFQ Advertisement	July 2026	April 2027
Obligation of Funds #2 for: Contract A (Final Design, Construction) and Contract B (Final Design, Construction)	July 2026	
Design-Build Contract Award	July 2027	April 2028

Construction	July 2027 – December 2033	April 2028 – September 2034
Complete Construction	December 2033	September 2034

c. Project Approvals

i. Environmental Permits and Reviews

The I-495 & I-270 Managed Lanes Study was undertaken by SHA to address mobility, reliability, and travel choice challenges along the corridors. The project was initiated in 2017 and the NEPA study resulted in an FHWA Record of Decision (ROD) in August 2022 for the Selected Alternative, followed by the National Park Service (NPS) ROD in March 2024. The NEPA timeline is presented in detail in **Table 10** and the environmental documents can be accessed through the following links:

- https://oplanesmd.com/deis/
- https://oplanesmd.com/sdeis/
- https://oplanesmd.com/feis/#FEIS
- https://oplanesmd.com/rod/

Table 10. I-495 & I-270 Managed Lanes Study NEPA Timeline

Notice of Intent to Initiate NEPA Study • Scoping Open Houses and 45-Day Comment Period	Spring 2018
Range of Alternatives • Defined Purpose and Need • Developed Preliminary Range of Alternative, Screening Criteria • Held Public Workshops	Spring 2018 – Summer 2018
Alternative Analysis and Environmental Technical Analysis • Selected Alternatives Retained for Detailed Study • Completed Technical Analysis • Held Public Workshops	Fall 2018 – Spring 2019
Development of Draft Environmental Impact Statement (DEIS) • Published DEIS and Began Comment Period • Held Public Hearings	Summer 2019 – Summer 2020
DEIS Comment Period and Consideration of Comments • Ended Comment Period (2,909 comments received & reviewed) • Reviewed/Considered DEIS Comments • Identified Preferred Alternative	Fall 2020 – Spring 2021
Development of Supplemental DEIS • Published Supplemental DEIS and Began Comment Period • Held Public Hearings	Spring 2021 – Fall 2021
Development of Final EIS and Record of Decision (ROD) • Ended Comment Period (2,139 comments received & reviewed) • Reviewed/Considered Supplemental DEIS Comments • Issued Final EIS and ROD	Fall 2021 – Summer 2022
Two Lawsuits Filed Against FHWA and SHA Challenging the Adequacy of the ROD	Fall 2022
Judgement Issued Upholding the NEPA Record of Decision. U.S. District Court for District of MD denied Plaintiff's requests and ruled in favor of FHWA/SHA, stating that no violations of NEPA were demonstrated	March 20, 2024

SHA led an extensive public engagement effort to communicate timely project information and updates to all communities between 2018 and 2023, including 26 public meetings/hearings; over 280 community association, elected official/legislature, stakeholder organizations, and property owner meetings; and over 150 agency meetings. SHA received, reviewed, and considered over 5,000 formal public comments as part of the NEPA study. Additionally, the project has broad public support demonstrated by the 14 letters of support, from local officials, state officials, community organizations, advocates, and stakeholders from the Commonwealth of Virginia, included in this grant Appendix. One of the letters included 36 signatory stakeholders representing a wide range of business, housing, and multimodal transportation interests.

Regarding the environmental permits, the project requires an individual Department of the Army Permit (Section 404 Clean Water Act), Clean Water Act Section 401 Water Quality Certification, Nontidal Wetlands and Waterways Permit, and a Waterway Construction Permit. Per coordination with the US Coast Guard (USCG), the project does not require a USCG Bridge Permit. The 401 Water Quality Certification was issued by the Maryland Department of the Environment (MDE), Water and Science Administration, on May 5, 2023. The 404 Clean Water Act permit is anticipated to be issued by the US Army Corps of Engineers (USACE) by September 2025. The Nontidal Wetlands and Waterways permit, and the Waterway Construction Permit are anticipated to be issued by MDE, Water and Science Administration by August 2025. Additionally, following NPS' signed ROD, SHA will be applying for Special Use permits for construction on NPS land. Working closely with NPS, SHA does not anticipate any issues with obtaining the permit to meet the construction schedule.

ii. State and local approvals,

SHA led an extensive public engagement effort to communicate timely project information and updates to all communities between 2018 and 2023, including 26 public meetings/hearings; over 280 community association, elected official/legislature, stakeholder organizations, and property owner meetings; and over 150 agency meetings. SHA received, reviewed, and considered over 5,000 formal public comments as part of the NEPA study. Additionally, the project has broad public support demonstrated by the 14 letters of support, from local officials, state officials, community organizations, advocates, and stakeholders from the Commonwealth of Virginia, included in this grant Appendix. One of the letters included 36 signatory stakeholders representing a wide range of business, housing, and multimodal transportation interests.

iii. Federal transportation requirements affecting local planning

The project is included in the National Capital Region Transportation Planning Board (NCRTPB) Fiscal Year 2023-2026 Transportation Improvement Program (TIP) [TIP ID T6432][25] and the NCRTPB Visualize 2045 Long Range Plan [ID 11582].[26]

iv. Project Risks

The cost estimate above has been developed in accordance with SHA's Cost Estimating procedures and the federal CSRA process to incorporate the cost of project risks.

[25] https://www.mwcog.org/documents/2022/06/15/fy-2023-2026-transportation-improvement-program-tip-visualize-2045/
[26] https://www.mwcog.org/documents/2022/06/15/visualize-2045-a-long-range-transportation-plan-for-the-national-capital-region-featured-publications-tpb-visualize-2045/

- Final design and construction costs are informed by market pricing information the state receives from its project bids including D-B contracts, inflation estimates regularly updated by SHA, and updated quantities based on 30% or greater design for the various design elements. These numbers include anticipated D-B contractor contingency and markup based on market precedent.
- Right-of-way acquisition costs are inclusive of the expected needs from the limits of disturbance included in the Final Environmental Impact Statement and incorporate mitigation needs as well.
- SHA has undertaken a detailed risk analysis as part of the CSRA. The contingencies reflect a comprehensive figure meant to provide clarity on the potential risk exposure for unanticipated costs that would not be covered through D-B contracts."

As with any complex project of this magnitude, there are risks to the project. These specific risks and mitigation strategies to successfully manage each of the identified project risks are in **Table 11**.

Table 11. Risks and Mitigation Strategies

Risk	Risk Description	Mitigation Strategies
Affordability	Unanticipated project cost increases.	SHA is advancing activities to mitigate project costs uncertainties, such as scope, schedule, and cost risk uncertainties; permitting; securing governmental and third-party approvals; performing geotechnical site investigations; advancing utility coordination; and preparing for right-of-way acquisition prior to beginning the D-B procurement. SHA has also included contingencies in the cost estimate based on FHWA's Cost and Schedule Risk Assessment.
Funding	Failure to secure needed bonds, grants, etc. for a 2026 procurement.	SHA has identified available funding sources and is applying for this grant to complete a funding plan. In addition to Large BIP funding, SHA will use numerous sources including, but not limited to Maryland Transportation Trust Fund revenues, toll revenue-back debt, and Grant Anticipation Revenue Vehicle Bonds.
Lack of Competition	Risk exposure is too great for potential proposers to bid on the large D-B contracts.	SHA is utilizing two smaller D-B contracts to mitigate project risks related to scope, schedule, contract terms, and pricing risks, such as materials, skilled labor, inflation, supply chain delays. SHA will engage the industry in pre-procurement partnering meetings to gauge industry to maximize competition and balance risks.
Interface Risk and Delay During Construction	Adjacent projects increase the likelihood that one project could delay the opening of an adjacent project, thus delaying the start of revenue collection.	SHA has experience managing adjacent projects such as $2.4B Intercounty Connector[6] that used multiple contracts. SHA will utilize best practices and lessons learned from those experiences to minimize and mitigate problems that could lead to delays in opening and cost overruns, such as increased likelihood that the actions of one contractor could lead to delays/ additional costs for another contractor due to failures in coordination at interface points.

Appeal against US District Court ruling on NEPA	Plaintiff filed appeal against U.S. District Court ruling in favor of FHWA/SHA on May 14, 2024	SHA developed a detailed Administrative Record on behalf of FHWA and the ruling in favor of FHWA/SHA included strong language supporting the agencies' decisions. It is anticipated that a decision on the appeal will not delay the start of construction in 2027.

VII. USDOT PRIORITIES

1. **Bridge Condition:** The superstructure and substructure of the American Legion Bridge is in fair condition and is anticipated to drop into poor condition in the next three years, making it a priority consideration of the BIP. See Section IV. 1, Merit Criteria – State of Good Repair. Seven other bridges, from westbound GWMP over I-495 to the I-495 Outer Loop ramp to westbound Clara Barton Parkway over MacArthur Boulevard, are below the current geometric design standards. See Section II, National Bridge Inventory.
2. **Funding:** Federal grant dollars are a key element in the funding plan for the project. Without the grant funding, SHA will be unable to deliver a project of this scale or bring the benefits of the project related to safety, mobility, connecting communities, enhancing transit and active transportation alternatives, and increasing the economic viability of the corridor. SHA is fully committed to the implementation of this project and will meet the required match for future eligible costs for the project through sources such as Maryland Transportation Trust Fund revenues, toll revenue-back debt, and Grant Anticipation Revenue Vehicle Bonds.
3. **Geometric Design Standards:** The proposed replacement of bridges within the project limits will reduce future major maintenance costs to SHA by modernizing the bridges to current standards and elevating their overall state of good repair. This will include fully compliant shoulder widths, stopping sight distance, vertical clearance, and MASH compliance.
4. **Readiness:** The project is ready to be implemented based on the significant environmental and technical work that has been completed since 2018. This includes a range of preliminary engineering activities for the project that have been undertaken and are either completed or substantially completed.
5. **National/Regional Significance:** The American Legion Bridge project is a key connection between Maryland and Virginia. It directly connects the two states over the Potomac River and, as a part of I-495 , located in the Washington, DC metropolitan area, it is a key element of both the national and regional transportation infrastructure system and is one of the most heavily traveled routes in the National Capital Region and in the nation. The American Legion Bridge is the essential connection between Maryland and Virginia to the west of Washington, D.C. On an average weekday more than 230,000 vehicles cross the bridge. Maryland and Virginia residents account for over 90% of the daily bridge users and over 60% of all trips are for travel between the residential and commercial areas along the west side of I-495 and the I-270 corridor in Maryland and the Tysons Corner area of Fairfax County, Virginia. These travel patterns demonstrate how integrated regional activities are between the states and the vital need to replace the existing bridge with a new bridge that can support growing cross-state travel demand.
6. **Access to Good-Paying Jobs:** The Baltimore Workforce Hub Initiative was launched to train workers to step into good-paying jobs in the growing clean energy and infrastructure industries. This new workforce hub will provide high-quality training, apprenticeship programs, technical

education programs, and supportive services to Maryland area workers, and will help to support this critical infrastructure project. Labor relations strategies will look to be incorporated into the project to ensure responsible bidders with capable workers are available for duration and completion of this complex project. The newly announced Road 2 Careers program, a part of the Workforce Hubs Initiative, will support training and apprentices to increase the skilled workforce available in the transportation sectors. This program uses Registered Apprenticeship, Pre-Apprenticeship, and Integrated Education and Training models to prepare job seekers for careers such as skilled trade workers, equipment operators, and welders. Efficient access is a key element in determining site locations for development, and the project will support the operational efficiency of the corridors providing connections to the sites.

VIII. DOT PRIORITY SELECTION CONSIDERATIONS

The superstructure and substructure of the American Legion Bridge is in fair condition and is anticipated to drop into poor condition in the next three years, making it a priority consideration of the Large BIP. See Section IV. 1, Merit Criteria – State of Good Repair. Seven other bridges, from westbound GWMP over I-495 to the I-495 Outer Loop ramp to westbound Clara Barton Parkway over MacArthur Boulevard, are below the current geometric design standards. See Section II, National Bridge Inventory. SHA is seeking funding through the Large BIP to improve eight bridge conditions that will fall into poor/fair condition within the next three years, which otherwise cannot be completed without the grant. The total future eligible project costs exceed $100 million and the total future eligible project costs are no less than $1 billion. See Section VI. 2, Project Readiness and Environmental Risk – Financial Review.