9 DEIS AND SDEIS COMMENTS AND RESPONSES

This chapter presents a compilation of responses to the common theme comments identified from both the DEIS and SDEIS and arranged by thematic topics.

Responses to Common Themes in **Section 9.3** of this chapter include:

- 9.3.1 Purpose and Need
- 9.3.2 Screening of Preliminary Alternatives
- 9.3.3 Analysis of Alternatives Retained for Detailed Study
- 9.3.4 Resource Impacts Assessment Methodology and Level of Detail
- 9.3.5 Public-Private Partnership (P3) Program
- 9.3.6 Tolling
- 9.3.7 Public Involvement
- 9.3.8 Comments Concerning resources Outside Phase 1 South Limits

9.1 Introduction

The Federal Highway Administration (FHWA), as the Lead Federal Agency, and the Maryland Department of Transportation State Highway Administration (MDOT SHA), as the Local Project Sponsor, have reviewed and considered all comments received throughout the course of the I-495 & I-270 Managed Lanes Study (Study) including those received during the formal comment periods on the Draft Environmental Impact Statement (DEIS) and Supplemental Draft Environmental Impact Statement (SDEIS). MDOT SHA and FHWA reviewed and considered comments received after the close of the formal comment period for both these documents. With over 5,000 comments received on these documents during the formal comment periods, common topics or themes emerged in the comments received. This chapter presents a compilation of responses to the common themes identified from both EIS documents and arranged by thematic topics in **Section 9.3**.

It is important to note that MDOT SHA and FHWA have continually considered and responded to comments received over the course of the Study. For more detail on how public and agency comments were incorporated into the Study, refer to **DEIS Chapter 7, Section 7.4 and SDEIS 7, Section 7.4** and Final Environmental Impact Statement **(FEIS), Chapter 8, Section 8.4**.

Individual comments received via oral testimony, voicemail, email, letter or, online comment form with responses to each, can be found in **FEIS, Appendix T**. Refer to the DEIS and SDEIS comment/response indices of **FEIS, Appendix T** which has been arranged in alphabetical order and/or by category (i.e., elected officials, community organization, business, agency, etc.).

9.2 Formal DEIS and SDEIS Comment Periods

9.2.1 DEIS Comments Received

The DEIS was published on July 10, 2020 and was made available on the I-495 & I-270 P3 Program webpage (https://oplanesmd.com/deis/), on the United States Environmental Protection Agency (USEPA) EIS

Database webpage and in hard copy at multiple locations in Montgomery and Prince George's counties Maryland, Fairfax County Virginia and Washington, D.C. The DEIS comment period was 123 days, from July 10, 2020 to November 9, 2020. During this comment period, 2,909 comments were received through a variety of means, including oral testimony during the six public hearings, email, letter, voicemail, and online comment form. Refer to **FEIS, Appendix T** for copies of the DEIS comments received as well as the responses.

9.2.2 SDEIS Comments Received

The SDEIS was published on October 1, 2021 and was made available on the I-495 & I-270 P3 Program webpage (https://oplanesmd.com/sdeis/), on the USEPA EIS Database webpage, and in hard copy at multiple locations in Montgomery and Prince George's counties, Maryland; Fairfax County, Virginia; and Washington, D.C. The SDEIS comment period was 60 days, from October 1 to November 30, 2021. During this comment period, 2,138 comments were received through a variety of means, including oral testimony during the one public hearing, email, letter, voicemail and online comment form. Refer to **FEIS, Appendix T** for copies of the SDEIS comments received and responses.

9.3 Responses to Common Theme Comments Received on the DEIS and SDEIS

9.3.1 Purpose and Need

Chapter 1 of the DEIS laid out the Purpose and Need: "the purpose of the Study is to develop a travel demand management solution(s) that addresses congestion, improves trip reliability on I-495 and I-270 within the Study limits, and enhances existing and planned multimodal mobility and connectivity." MDOT SHA identified five key needs related to this underlying purpose: (1) accommodate existing traffic and long-term traffic growth; (2) enhance trip reliability; (3) provide additional roadway choices; (4) accommodate homeland security; and (5) improve movement of goods and services. Refer to **DEIS, Appendix A**, https://oplanesmd.com/wp-content/uploads/2020/07/DEIS_AppA_PN_web.pdf.

Comments received suggested that the Study's Purpose and Need was drafted too narrowly and improperly focused on highway and tolled lane alternatives. Comments advocated that the Purpose and Need should have been created to focus on solutions to a broader regional congestion and multi-modal mobility need more generally. As described below, the FHWA and MDOT SHA developed the Study's Purpose and Need through a collaborative process with other federal, state and local agencies and the public that included examination of multiple transportation and regional planning studies that had been conducted over the past 20+ years. As detailed in the Purpose and Need statement, these studies demonstrated the need in the National Capital Region (NCR) for a synergistic system of transportation solutions as this region is the most congested in the nation based on annual delay and congestion per auto commuter. Refer to **DEIS, Appendix A**. A particular mode or facility type, such as managed lanes, can be identified through the transportation planning process and adopted in the National Environmental Policy Act (NEPA) process.[1] The Purpose and Need for the Study neither precluded nor prevented consideration of non-tolled lane alternatives. As further discussed, the process to establish the Purpose and Need and the manner in which the agencies considered potential alternatives in light of that Purpose and Need were conducted in accordance with well-established federal regulations.

[1] AASHTO's Practitioner's Handbook 7, https://environment.transportation.org/wp-content/uploads/2021/05/ph07-2.pdf

Consistent with federal statutes, regulations and guidance and the Council on Environmental Quality (CEQ) NEPA regulations, the Study's Purpose and Need briefly describes a set of transportation problems and needs regarding congestion on I-495 and I-270 that have been raised by state, local, and regional transportation professionals over several decades. The Study's Purpose and Need statement further describes a set of problems arising out of the severe congestion on I-495 and I-270, as well as related socioeconomic and financial needs for the agency to consider in the course of the Study.

Concerns with congestion on I-495 and I-270 and planning to accommodate anticipated future growth have been the subject of numerous studies conducted by MDOT, Virginia Department of Transportation (VDOT), and regional planning agencies for many years. (Refer to the OP Lanes Maryland website: https://oplanesmd.com/environmental/resources/). These studies reflect how the Washington metropolitan area has continued to experience considerable growth in population and employment. Specifically, population in the study area has increased by 20.1 percent in Montgomery County and 14.6 percent in Prince George's County between 2000 and 2020. Continued growth is anticipated as Metropolitan Washington Council of Governments (MWCOG) estimates that between 2020 and 2045, the population in Montgomery County and Prince George's County will increase approximately 16.3 percent and 7.9 percent, respectively. Additionally, this area is one of the most intensive employment, residential and transportation corridors in the State. The majority of these studies reflect, in part, some of the operational and/or engineering alternatives that are included in the DEIS and SDEIS. Specifically, these studies, dating back to 2004, evaluated various options of building managed lanes along these highways and means to connect that additional capacity to other regional transportation facilities. Importantly, these studies also considered various transit improvements, including major projects such as the Purple Line which is currently under construction. None of the various analyses supported the principle that highway or transit options by themselves could alleviate traffic congestion or accommodate anticipated future demand. Refer to **DEIS, Appendix A**.

At the same time as Maryland, VDOT proceeded with its own studies and projects on the other side of the Potomac River across the American Legion Bridge (ALB) and has built a managed lane system, currently operating between Fairfax County and Fredericksburg. In 2017, the MWCOG's Transportation Planning Board (TPB) evaluated and approved a set of 10 regional initiatives for further study, which included analyzing managed lanes on the portions of I-495 and I-270 included in the Study. Then, in October 2018, the TPB approved the "Visualize 2045" plan which included a variety of financially constrained projects related to potential toll lanes on I-495 and I-270. The NCR Transportation Planning Board (NCRTPB) is currently updating the Visualize 2045 plan, to be completed in 2022.

In addition to this wealth of historical consideration of transportation solutions, development of the Study's Purpose and Need was done in consideration of public and agency comments received during the scoping process and also incorporated input through interagency collaboration from the full range of federal, state, and local agencies involved in this Study. Eventually, all Cooperating Agencies participating in the Study, except for the Maryland-National Capital Park and Planning Commission (M-NCPPC), concurred with the definition of the Purpose and Need. Refer generally to **Chapters 1 of the DEIS and SDEIS**.

Multimodal Mobility and Connectivity Needs

Many comments received, mostly on the DEIS, noted a lack of multimodal travel options or that multimodal connectivity was not adequately addressed in the Study. The Purpose and Need statement recognizes that "accommodating existing and proposed multimodal mobility and connectivity" is an important need to address the severe congestion on I-495 and I-270 and important features were considered and was added to address specific comments received during Scoping. In support of this identified need, multimodal alternatives and elements were analyzed through the alternatives development process. Several standalone transit alternatives (e.g., Alternatives 14A, 14B, 14C, and 15) were considered in the preliminary range of alternatives and were dismissed from further consideration based on a number of factors, the most significant of which was the inability of standalone transit to address long-term traffic growth. That is, no standalone transit alternative would be able to attract and carry sufficient ridership to address the severe congestion on these facilities.

Although these standalone transit alternatives were found to not meet the Study's Purpose and Need (consistent with findings of the multiple planning studies summarized above), multiple transit elements have been incorporated into the Study to address the identified multimodal and connectivity needs in the study area as a complement to the congestion relief offered by the proposed highway improvements. These include:

- Allowing toll-free bus transit usage of the high-occupancy toll (HOT) managed lanes to provide an increase in speed of travel, assurance of a reliable trip, and connection to local bus service/systems on arterials that directly connect to urban and suburban activity centers.

- Accommodating direct and indirect connections from the HOT managed lanes to existing transit stations and planned Transit Oriented Development at the Shady Grove Metro, Twinbrook Metro, Rockville Metro, and Westfield Montgomery Mall Transit Center.

MDOT SHA has also committed to regional transit improvements to enhance existing and planned transit and support new opportunities for regional transit service including increasing the number of bus bays at Washington Metropolitan Area Transit Authority's (WMATA) Shady Grove Metrorail Station and increasing parking at the Westfield Montgomery Mall Transit Center.

Comments indicated a strong interest in bicycle and pedestrian improvements which have also been incorporated into the Study to address the need for accommodating existing and proposed multimodal connectivity and mobility. These improvements include replacing, upgrading or providing new pedestrian/bicycle facilities consistent with current master plans where adjacent connections on either side of the bridge currently exist. Examples of pedestrian and bicycle facilities that would be constructed as part of the Preferred Alternative include the following (refer to **Chapter 3, Table 3-2** for the complete list):

- Constructing a new shared use path across the ALB to connect facilities in Maryland and Virginia to support regional multimodal travel.

- Lengthening the I-270 bridge over Tuckerman Lane to accommodate future pedestrian/bicycle facilities along Tuckerman Lane. Montgomery County would construct the master plan recommended facilities along Tuckerman Lane in the future.
- Constructing new sidepaths across MD 190 over I-495 and new bike lanes in both directions on MD 190.
- Constructing a new sidewalk along the west side of Seven Locks Road under I-495 to reestablish the historic connection between the First Agape AME Zion Church and Morningstar Tabernacle No. 88 Moses Hall and Cemetery.

Consideration of Non-Highway Alternatives

Comments received indicated that the established needs were too focused on highway improvements. The Study's Purpose and Need allowed for a robust analysis of a full range of alternatives that included evaluation of non-tolled, general purpose lanes, tolled managed lanes, transit only, and a combination of highway and transit improvements. Initially a range of 15 preliminary alternatives were identified and analyzed based on previous studies and planning documents and input from the public and federal, state, and local agencies during the scoping process. Additional alternatives were identified and analyzed in direct response to public and agency comments for a total of eighteen different alternatives, including the Preferred Alternative.

Non-highway alternatives were considered during the alternatives screening process. These included heavy rail and light rail parallel to the existing alignments (the Purple Line Light Rail was already proceeding), fixed guideway or Bus Rapid Transit (BRT) along a new alignment parallel to the existing highway alignments and dedicated managed bus lanes on I-495 and I-270. Refer to **DEIS, Appendix B**. As with all the alternatives under the Preliminary Range of Alternatives, these non-highway options were evaluated using the various project needs, a review of available data, and similar proposals that had been made over time, as well as a qualitative traffic assessment of each alternative's potential to reduce congestion on I-495 and I-270.

The standalone transit options failed to address all the major areas of need identified and had major engineering and operational challenges associated with them. As one example, the Purple Line FEIS and Purple Line Travel Forecasts Results Report evaluated the impact of transit alternatives on overall automobile usage by presenting the vehicle miles traveled (VMT) in the region. The results showed that in 2040, under the Purple Line Preferred Alternative, 0.07 percent less VMT would be traveled each day in the region versus the 2040 Purple Line No Build Alternative. Based upon the analysis conducted and presented and input from agencies and public, FHWA and MDOT determined they would not adequately address long-term traffic growth, address trip reliability, nor roadway choices, and none of them accommodated homeland security and freight movement needs. For these reasons, those standalone transit alternatives were dropped from further consideration. Refer to **DEIS, Chapter 2, Section 2.5.2**.

Effects of the Pandemic on Existing and Projected Traffic

Many commenters suggested that the Study's Purpose and Need, which was developed in 2018, was no longer valid due to the effects of the global pandemic seen in 2020, i.e., reduced car traffic, altered commuting patterns, and increased telework (or remote work). Some noted that the effects of the

pandemic may reduce the need for the project or negatively impact the project's financial viability. Others stated that incentivizing telework as an Alternate Transportation Improvement could also reduce the need for the project. These viewpoints raised the question of MDOT SHA's justification for the traffic congestion and overall benefits of the proposed improvements.

MDOT has closely monitored changes in traffic patterns throughout the pandemic, and as of early 2022, daily traffic volumes have already recovered back to over 90 percent of pre-COVID levels. Although there is still uncertainty surrounding traffic projections resulting from the COVID-19 pandemic, transportation experts have analyzed pandemic traffic conditions and future traffic demand inputs and note that traffic volumes have continued to recover since the rollout of the vaccines in early 2021. Traffic volumes are anticipated to return to pre-COVID levels before the time the HOT lanes are operational. Given the ultimate 2045 design year, the HOT lanes will be required to accommodate long-term traffic.

Given the uncertainty surrounding resolution of the pandemic and how travel patterns will adjust, and over what time period, no definitive traffic model exists to predict how the global pandemic will affect long-term mobility patterns. To adapt to the ongoing and potential long-term travel impacts associated with the pandemic, MDOT SHA developed a COVID-19 Travel Analysis and Monitoring Plan. Refer to **FEIS, Appendix C** for a copy of the latest version of that plan and results. The plan included three components:

- Monitoring: tracking changes in roadway and transit demand during the pandemic, i.e., how travel varies in response to infection figures, vaccine distribution, unemployment rates, school closings, and policy changes;
- Research: reviewing historical data and projections from the Transportation Research Board and the NCRTPB; and
- Sensitivity Analyses: evaluating "what if" scenarios, including potential changes in teleworking, eCommerce, and transit use on projected 2045 travel demand and operations.

The monitoring effort included tracking changes in traffic volumes and transit usage throughout the pandemic, and the corresponding impact on speeds and congestion along I-495 and I-270. The data shows a severe drop in traffic volumes in April 2020 after stay-at-home orders were issued across Maryland, with daily traffic volumes on I-270 and I-495 reducing by more than 50 percent compared to April 2019. After the stay-at-home order was replaced with a "safer at home" advisory in May 2020, traffic volumes gradually increased throughout the summer, stabilizing at approximately 15 percent less than typical conditions during Fall 2020. As cases began to surge in November/December 2020, traffic volumes dipped again through the winter. With the rollout of vaccines in early 2021, the corresponding drop in COVID-19 cases, and the gradual reopening of schools and businesses, daily traffic volumes have continued to recover. Statewide, weekly traffic volumes were only down five (5) percent for the week of November 8, 2021 compared to the same week in 2019, per MDOT's coronavirus tracking website, linked below. (https://www.mdot.maryland.gov/tso/Pages/Index.aspx?PageId=141). Transit use has been slower to recover, with use of Maryland Transit Administration (MTA) services statewide down over 40 percent compared to pre-pandemic levels as of October 2021 (see link above). In the D.C. region, usage of WMATA facilities is also down significantly compared to 2019. As of Fall 2021, WMATA rail ridership is down 73 percent on weekdays, while WMATA bus ridership is down 40 percent on weekdays, and parking at Metro

facilities is down 88 percent (https://www.wmata.com/initiatives/ridership-portal/upload/October-2021-Ridership-Snapshot.pdf).

While congestion decreased significantly on I-495 and I-270 at the onset of the pandemic in Spring 2020, significant congestion had returned to the study area by November 2021, approaching pre-pandemic levels. For example, average speeds on the I-495 Inner Loop crossing the ALB during the PM peak in early November (non-holiday) of 2021 were 20 miles per hour (mph), reflecting significant congestion, and matching the speeds during the similar period in November 2019 (also 20 mph). In the AM peak, average speeds on the I-495 Outer Loop between MD 650 and US 29 in early November 2021 were even lower – below 15 mph. While these speeds are slightly higher than those observed in that same area during the AM peak in November 2019 (10 mph), the findings indicate that there is still a lot of congestion along I-495 even though volumes have not fully rebounded to pre-pandemic levels along I-495 during the morning peak period. Along I-270, average speeds are generally 5 to 10 mph higher in November 2021 compared to November 2019 despite volumes exceeding 2019 levels at MDOT SHA's permanent count station located on I-270 South of MD 121. These improvements could be attributed to recent improvements completed by MDOT SHA along I-270, including the opening of the Watkins Mill interchange in 2020 and the implementation of ramp metering along southbound I-270 on-ramps in September 2021 as part of the Innovative Congestion Management (ICM) project. Even so, some congestion remains along I-270, with average speeds on I-270 southbound of approximately 30 mph during the AM peak period and average speeds on I-270 northbound below 40 mph during the PM peak period in November 2021.

Based upon historic research of other similar dramatic societal effects on travel and the most recent data suggesting that traffic is rebounding close to pre-pandemic levels, the 2045 forecasts and results presented in **FEIS, Section 4.3** using models that were developed and calibrated prior to the onset of the COVID-19 pandemic have been determined to be reasonable for use in evaluating projected 2045 conditions. However, MDOT SHA acknowledges that residual effects of some of the near-term changes in travel behavior could be carried forward into the future. Therefore, a sensitivity analysis evaluating several "what if" scenarios related to future traffic demand due to potential long-term changes to teleworking, e-commerce, and transit use was also conducted. The first part of the sensitivity analysis involved modifying input parameters in the MWCOG regional forecasting model based on observed changes in travel behavior during the pandemic to evaluate a range of potential long-term scenarios. The second part of the sensitivity analysis involved re-running the 2045 No Build and 2045 Build VISSIM models that were used to generate the operational results presented **Chapter 4, Section 4.3** of this FEIS, but with reduced demand volumes to account for potential sustained impacts from the pandemic. The results of the MWCOG and VISSIM sensitivity analyses confirm that the capacity improvements proposed under the Preferred Alternative would be needed and effective even if future demand changes from the pre-pandemic forecasts based on potential long-term impacts to teleworking, ecommerce, and transit use that are not formally accounted for in the current regional forecasting models. **Refer to FEIS, Appendix C**.

Impacts of Teleworking/Remote Working

Comments that acknowledged the decrease in travel during the pandemic suggested that the trend may be long-term with an increase in telework or remote working. The majority of the comments related to telework or remote working was received on the DEIS. With regard to teleworking, recent surveys from

Gallup and Pew Research[2] indicate that remote work can be expected to continue at levels higher than before the pandemic. With this in mind, MDOT SHA is working with local and regional businesses and with other state agencies, including the Maryland Departments of Environment, Budget and Management, Commerce, and General Services, to better understand the types of initiatives that would support increased telework while maintaining or increasing productivity. While supporting telework will continue to be part of MDOT SHA's approach to addressing the transportation needs and economic wellbeing of the region, commuting trips only account for around 20 percent of daily travel in the NCR.[3] Therefore, even assuming a substantial shift to telework, this would likely have minimal impact on the remaining 80 percent of daily trips, which include tourism and interstate travel, shipping and freight deliveries, errands, and other personal and business travel. These activities will continue to put pressure on the region's road network.

I-495 has been at or over capacity since the late 1980s during peak hours, and I-270 has been at or over capacity since the late 1990s during the peak hours. Over the years, those hours of peak congestion on I-495 and I-270 have increased to 10 and 7 hours, respectively. Additionally, projections of long-term growth in the region indicate that another 1.3 million people and 1.0 million jobs will be here by 2045. These developments are expected to continue to drive growth in travel demand, even with the potential for increased telework/remote working. MDOT SHA will commit to tracking travel behavior trends and traffic volumes and will reevaluate during final design.

9.3.2 Screening of Preliminary Alternatives

Chapter 2 of the DEIS summarizes the process by which MDOT SHA considered and evaluated a full range of potential alternatives; greater detail is provided in **DEIS, Appendix B**. Many comments received focused on the agency's screening of preliminary alternatives prior to publication of the DEIS, expressing support for one or more of the options that were not carried forward for detailed study, including standalone transit (a variety of heavy rail, light rail and other options), the MD 200 Diversion Alternative, and methods of Transportation System Management / Transportation Demand Management (TSM/TDM). Other comments received suggested a study of additional alternatives outside of the study area, including monorail on I-270 north, a second Potomac River crossing, and Maryland Area Regional Commuter (MARC) rail expansion. Some preliminary alternatives were identified through the agency's assessment of multiple regional planning studies that had been conducted and implemented over the past several decades. Other alternatives reflected input received from the public, agencies, and stakeholders during the NEPA scoping process. MDOT SHA performed a comprehensive analysis of all potential alternatives and evaluated them using an objective set of criteria based on well-established NEPA principles to determine whether those alternatives could meet the established Purpose and Need.

A. Process by Which Agency Eliminated Alternatives

Pursuant to the CEQ regulations and FHWA guidance, agencies perform an assessment of potential project alternatives to determine if they warrant being advanced to detailed study in an EIS. The screening of alternatives is an essential part of the NEPA process designed to focus attention of the public, stakeholders

[2] https://www.pewresearch.org/social-trends/2022/02/16/covid-19-pandemic-continues-to-reshape-work-in-america/ and https://news.gallup.com/poll/355907/remote-work-persisting-trending-permanent.aspx

[3] TPB Regional Travel Survey, 2020 - https://www.mwcog.org/newsroom/2020/10/21/survey-provides-detailed-look-at-17m-trips-taken-per-day-by-area-residents/

and the agency decision-makers on the actions most likely to address the Purpose and Need and to avoid wasteful analysis on options that could not address the identified fundamental needs. This process involves application of the Study's established Purpose and Need elements, as well as other criteria related to transportation planning and the sources of financing a proposed action. Refer to **DEIS, Appendix B**.

For the Study, the alternatives screening process first focused on four transportation assessments. Each of the preliminarily identified alternatives were evaluated on whether or how they addressed: (1) existing traffic and long-term traffic growth; (2) trip reliability (dependable travel times); (3) additional roadway travel choice; and (4) ease of usage for travelers. In addition, the Purpose and Need elements were applied to evaluate whether each alternative could: (1) accommodate population evacuations or emergency response; (2) improve the movement of freight, services, and commuting employees; (3) provide a revenue source; (4) promote multi-modal connectivity; and (5) address expected environmental impacts. These criteria were applied to all 15 preliminary alternatives to gauge how they would be expected to satisfy the project Purpose and Need. Refer to **DEIS, Appendix B**.

B. Certain Alternatives Should Have Been Retained for Detailed Study in EIS

Transit Improvements

Based on past regional studies and agency and public comments, MDOT SHA considered four separate, standalone transit alternatives: 14A (heavy rail), 14B (light rail), 14C (fixed guideway BRT, off current alignment), and 15 (dedicated Bus Managed Lanes on existing alignment). None of these alternatives would address existing traffic or long-term traffic growth on I-495 and I-270. Refer to **DEIS, Chapter 2 and DEIS, Appendix B**.

With respect to either heavy or light rail alternatives, the 2002 Capital Beltway/Purple Line Study (2002 Study) analyzed circumferential rail corridors (approximately 42 miles) along the Capital Beltway Corridor. This analysis concluded: "Congestion on the Beltway itself as well as demand on the other transportation facilities is so great that no single highway or transit improvement will provide significant relief to the long-term demand" (2002 Study, page S-17). It was also recommended that studies of the highway and transit alternatives be conducted separately because transit operates more efficiently if it serves areas where people live and work. Refer to **DEIS, Appendix B**. This analysis also stressed the basic fact that people do not live and work "on the Beltway" and that transit options generally service users by directly connecting activity (housing and work) locations.

Importantly, major standalone transit projects in the study area have been approved and are in the process of being constructed. For example, the US Federal Transit Administration approved the Record of Decision (ROD) for the Purple Line project in 2014. The project, a 16-mile, two-track light rail system, accommodates significant demand for transit within this priority corridor and offers connections between two ends of the WMATA Red Line and to key destinations such as the downtown Silver Spring Transit Center and the University of Maryland, inside the Capital Beltway. The Purple Line FEIS and Purple Line Travel Forecasts Results Report also evaluated VMT in the region. While the Purple Line will provide additional travel options connecting activity centers, in 2040, under the Purple Line, 0.07 percent less vehicle miles would be traveled in the region each day versus the 2040 No Build alternative. (2002 Capital Beltway / Purple Line Study https://oplanesmd.com/environmental/resources/).

In the 2008 Purple Line Alternatives Analysis/DEIS, a heavy rail option was considered but that alternative was dropped from detailed review because of several factors that are also present in this project: prohibitive capital costs and lack of overall cost-effectiveness due to high construction costs, as well as greater environmental impacts related to the intensity of construction of new heavy rail infrastructure. Congestion on I-495 and the demand for transportation is so great that transit and roadway improvements are needed to address the congestion in the region (2002 Capital Beltway / Purple Line Study https://oplanesmd.com/environmental/resources/).

In addition to rail transit, fixed guideway BRT off-alignment was considered during the preliminary screening of alternatives. Multiple major BRT projects included in the Fiscally Constrained Long-Range Plan (CLRP), *Visualize 2045*, were analyzed in the traffic analysis for the Study and assumed to be in place in 2045. A 2017 study by the NCRTPB analyzed a series of regional transportation initiatives compared to the baseline of the CLRP. One of the initiatives studied was a regionwide system of BRT and transitway networks. These included new BRT facilities in Montgomery and Prince George's counties, Northern Virginia, and Washington, D.C. that were in addition to the BRT projects included in the CLRP. The results of the study showed:

- A one percent reduction in average travel times for transit, high-occupancy vehicles (HOV) and single-occupancy vehicle commute trips compared to the 2040 CLRP scenario;
- A two percent reduction in daily vehicle hours of delay; and
- Less than one percent daily VMT and daily VMT per capita.

While the standalone transit alternatives were screened from detailed study, MDOT SHA retained multiple transit elements as part of the Build Alternatives in the DEIS that were ultimately incorporated into the Preferred Alternative. These transit elements were added to support the Purpose and Need element of enhancing multimodal connectivity and mobility and in direct response to public and agency comments received during the scoping and alternatives development process (Refer to **Section 9.3.1 of this Chapter**). With respect to the preliminary bus transit alternatives, for example, because buses will be able to use the new managed lanes, transit trips will be improved by providing a free-flow condition for such service with no additional property and environmental impacts associated with a fixed guideway BRT off-alignment alternative. This could help revive express bus service from Montgomery County to Tysons Corner, Virginia, two significant activity and economic centers. Moreover, this aspect of the proposed action also satisfies other Purpose and Need elements by increasing travel speed and assuring greater trip reliability for bus service.

Transportation System Management/ Transportation Demand Management (TSM/TDM)

A standalone TSM/TDM alternative (Alternative 2) was considered during the alternative screening process. Examples of system management measures included in that analysis were adaptive ramp metering, part-time shoulder use, and extended acceleration/deceleration lanes to meet the American Association of State Highway Transportation Officials' (AASHTO) guidelines. Demand management strategies focus more on user behavior, including telecommuting promotion, park-and-ride lots, and ridesharing. As background, TSM/TDM is already being implemented along I-270 as part of the I-270 ICM project. The I-270 ICM project is designed to address existing issues and short-term needs, unlike the

Study, which includes addressing long-term traffic growth as part of the Purpose and Need. The TSM/TDM alternative considered as part of the Study included additional system and demand management measures applicable to I-495 and I-270, *in addition* to the ICM project. Some commenters on the SDEIS concluded that the measures added from the ICM project would be removed under the Preferred Alternative. However, the improvements completed under the ICM are considered existing conditions and are assumed to be in place with the Preferred Alternative.

In order to assess the performance of the TSM/TDM alternative, MDOT SHA analyzed traffic modeling from the I-270 ICM project in the context of the modeling performed on the No Build Alternative for this Study. Relatively minor short-term benefits from these measures were forecasted for portions of I-270 and I-495, however, those benefits would not be sustained for the long-term. Refer to **DEIS, Appendix B**. Even though this alternative would not satisfy the Purpose and Need as a standalone strategy, many TSM/TDM elements are included in the Preferred Alternative or assumed in the traffic analysis as existing conditions (i.e., ICM improvements), including:

- Adaptive ramp metering along I-270 that is being installed as part of the I-270 ICM project;
- Needed changes at interchange ramp terminals and intersecting roadways to optimize lane configurations and traffic signal timing to provide adequate traffic flow along the crossroads; and
- Enhancements to acceleration and deceleration lanes which can improve traffic operations along the mainline in locations where current design does not meet design guidelines.

Finally, the congestion pricing model to be employed as part of the proposed managed lanes is itself an effective travel demand management solution.

MD 200 (Intercounty Connector) Diversion Alternative

Following the Spring 2019 Alternatives Public Workshops and agency meetings, several Cooperating and Participating Agencies requested that MDOT SHA evaluate an alternative that would provide an alternate route for travelers to use MD 200 (Intercounty Connector [ICC]) instead of the top side of I-495 between I-270 and I-95 to avoid or reduce impacts to significant, regulated resources, and residential relocations to that section of I-495. Refer to **DEIS, Appendix B**.

The MD 200 Diversion Alternative had several key features: (1) no widening or capacity improvements along I-495 between the I-270 West Spur and I-95; (2) consideration of TSM/TDM improvements along I-495 between the I-270 East Spur and I-95; (3) two managed lanes added in each direction on I-495 from south of George Washington Memorial Parkway to the I-270 West Spur, and in each direction on I-495 between I-95 and west of MD 5; (4) conversion of the one existing HOV lane in each direction to a HOT managed lane on I-270 and the addition of one HOT managed lane in each direction on I-270, resulting in a two-lane managed lanes network on I-270; and (5) two managed lanes added in each direction of I-95 between MD 200 and I-495. Refer to **DEIS, Appendix B**.

Importantly, this new Screened Alternative was developed and analyzed with input from the agencies to the same level of detail and using the same approach for the anticipated limits of disturbance (LOD) as all other Screened Alternatives. Detailed traffic analyses were completed on the MD 200 Diversion Alternative to assist in evaluating its ability to meet the Study's Purpose and Need, again, using the same

methodology that was used for the Screened Alternatives. The methodology included a three-step process:

- A regional forecasting model was developed for the MD 200 Diversion Alternative using the MWCOG model, the model used by MDOT SHA and other transportation agencies to evaluate projects in the Washington, D.C. metropolitan area;
- Outputs from the MWCOG model were used to develop balanced traffic volume projections for the design year of 2040 for each roadway segment and ramp movement within the Study limits; and
- Traffic simulation models for the MD 200 Diversion Alternative were developed using VISSIM software to determine the projected operational performance in several key metrics.

Two key underlying factors played a large role in evaluating whether the MD 200 Diversion Alternative could meet the Study's Purpose and Need. First, the portion of I-495 proposed to be excluded from any improvements is one of the most congested and least reliable segments of highway in Maryland. While the presumed TSM/TDM measures could slightly improve congestion there, that portion of I-495 would still experience severe congestion. Second, while MD 200 currently has adequate capacity to accommodate the potential for diverted traffic, it was anticipated that portions of MD 200 would reach capacity during peak travel periods by 2040. Therefore, the ability to handle diverted traffic would be limited in the future.

Traffic analysis was performed using the same key traffic metric applied to all Screened Alternatives (System-Wide Delay, Corridor Travel Time and Speed, Level of Service (LOS), Travel Time Index (TTI), Vehicle Throughput, and Effect on Local Roadway Network). After this comprehensive evaluation, MDOT SHA determined that the MD 200 Diversion Alternative would not address the Study's Purpose and Need of accommodating long-term traffic growth, enhancing trip reliability, or improving the movement of goods and services. In fact, the MD 200 Diversion Alternative was the worst performing of the various Build Alternatives and provided the least congestion relief benefits. Refer to **DEIS, Chapter 2** and **DEIS, Appendix B**.

Therefore, even recognizing that the MD 200 Diversion Alternative would have avoided all residential displacements and all but one business displacement and would have reduced the number of parks and historic resources potentially impacted by the proposed action, MDOT SHA's final conclusion, with concurrence from FHWA, was that this alternative would not adequately meet the established Purpose and Need. Comments received on the DEIS and SDEIS questioned this conclusion on the basis that the purpose and need for the ICC Study in 2006 was to reduce congestion on I-495. However, the needs for the ICC Study were related to increasing mobility and safety, facilitating the movement of goods and services, serving existing and future development patterns, and advancing homeland security and did not include addressing congestion on I-495. Although the Preferred Alternative, as described in the SDEIS and this FEIS, also avoids improvements to the topside of I-495 and provides less improvement to traffic operations when compared to the DEIS Build Alternatives, it was chosen based, in part, in response to comments received from the public, partner agencies and stakeholders who indicated a strong preference for eliminating property and environmental impacts on the top and east sides of I-495. While MDOT SHA and FHWA recognize that congestion would be present during the afternoon peak period on I-270

northbound and the I-495 inner loop in the design year 2045 due to congestion outside of Phase 1 South, the Preferred Alternative would provide tangible operational benefits to the system including significantly increasing throughput across the ALB and the southern section of I-270 while reducing congestion. Refer to **SDEIS Chapter 3, Section 3.3** and **FEIS Chapter 4, Section 4.3**.

Monorail

A study of monorail on I-270 between Shady Grove Metrorail Station and Frederick, Maryland was requested by the Maryland Board of Public Works (BPW) as a condition of approval of the P3 Traffic Relief Program. The *I-270 Monorail Feasibility Study,* conducted by MDOT in late 2020 through early 2021, assessed the viability of constructing, operating, and maintaining a monorail system between Shady Grove Metrorail Station and Frederick, Maryland (https://www.mdot.maryland.gov/tso/pages/Index.aspx?PageId=122), outside of the study limits.

The *I-270 Monorail Feasibility Study* concluded that implementation of Monorail between Shady Grove Metrorail Station and Frederick, Maryland would not conflict with the improvements proposed under the Study as the limits of the monorail would begin near the northern terminus of the Study and proceed north, outside of the study limits. The *I-270 Monorail Feasibility Study* suggested that the build scenario would result in the decline of daily auto person trips by roughly 13,000, and that vehicle trips will decrease by approximately 10,000, both a decrease of only 0.1 percent. [4] The auto vehicle trip reductions were spread throughout the study area, with a small decrease in traffic volume on major roadways. The *I-270 Monorail Feasibility Study* acknowledged that the ridership analysis was conducted prior to the COVID-19 pandemic and impacts to existing transit ridership and vehicle volume reductions on I-270 were not fully examined.

MARC Rail Expansion

Communities along the I-270 corridor are currently served by the WMATA Red Line and MARC Brunswick Line. The WMATA Red Line alignment follows MD 355 with five stations north of I-495. The Red Line also crosses I-495 at MD 97 with three stations north of I-495. The MARC Brunswick line includes five stations north of I-495 within the study corridors and continues north into West Virginia. The MARC Brunswick Line is generally parallel to MD 355 to the east.

Recently, the State reviewed existing MARC Service on the Brunswick Line as part of the development of the *MARC Cornerstone Plan*. This effort sought input from each of the regional transit stakeholder groups, to define strategic priorities, policies, programs, and initiatives for MARC Service. The stakeholders provided their observations and suggestions about ways in which existing transit services may benefit from the P3 Program. Discussion also included new transit service concepts, potential access points, and constraints. Montgomery County identified the following service concepts: several enhancements to the MARC Brunswick Line, including bi-directional AM and PM service; more trips to the schedule; and mid-day trips between Germantown and Washington Union Station. The group reviewed MARC Brunswick Line capacity improvements contained in the *MDOT MTA's MARC Cornerstone Plan*.

[4] The I-270 Monorail Feasibility Study, https://www.mdot.maryland.gov/OPCP/I-270_MFS_Report_2021-2_23.pdf

However, for purposes of satisfying the Study's Purpose and Need, implementation of this option is severely constrained as a result of several practical engineering and fiscal realities. Current MARC service is experiencing capacity limitations in terms of the number of through tracks, size of platforms, station infrastructure, and the number of rail cars. The MARC Brunswick Line operates on freight tracks owned by CSX. CSX will not allow the State to increase commuter rail service without adding a third main line track. The MDOT MTA's Cornerstone Plan identified $1.3 billion in capital investments necessary for increased service on the Brunswick Line. Refer to MDOT MTA MARC Cornerstone Plan: https://s3.amazonaws.com/mta-website-staging/mta-website-staging/files/Transit%20Projects/Cornerstone/MCP_MARC.pdf) For these and other reasons, MARC rail expansion was not carried forward for detailed analysis.

Second Potomac River Crossing

The Study does not include a new or second crossing of the Potomac River. The Preferred Alternative includes the full replacement of the ALB with a new, wider bridge (not widening of the existing bridge). Regardless of whether this proposed action is approved, the ALB needs a new bridge deck plus other repairs or to be replaced in the next decade. The new ALB would be constructed in phases to maintain the same number of existing lanes at all times. Therefore, the new bridge would be replaced in the same existing location. The new, wider ALB will include a shared use path to provide bicycle and pedestrian connection between Virginia and Maryland.

A second crossing of the Potomac River was also considered in 2017. The NCRTPB created the Long-Range Plan Task Force (https://www.mwcog.org/committees/lrptf/) to identify a set of regional projects, programs, and policies to address issues like long-term congestion and mobility. From a list of nearly 100 ideas, the Task Force developed a set of ten initiatives to analyze for further study and potential future incorporation into the region's long-range transportation plans, including an additional Potomac River bridge.

This analysis found that an additional northern Potomac River crossing would not have as much of a regional benefit as many of the other initiatives that were analyzed. When the TPB considered these results and other factors, including public support, implementation feasibility, and costs, the TPB decided to exclude the second bridge crossing from the 2045 Long Range Plan.

9.3.3 Analysis of Alternatives Retained for Detailed Study

A. Analysis of the No Build Alternative

NEPA's CEQ regulations, 40 Code of Federal Regulations (CFR) 1500-1508, require every environmental impact statement to include a No Build Alternative for detailed assessment. The No Build Alternative serves as a baseline alternative for comparison to all proposed action alternatives. For the Study, the No Build Alternative does not include any improvements to I-495 and I-270 but does reflect all other multi-modal transportation initiatives and projects included in the regional CLRP, "Visualize2045," adopted by the MWCOG in October 2018. For example, the No Build Alternative assumes major transit projects would be in place like the North Bethesda Transitway BRT, Veirs Mill Road BRT, MD 355 BRT, Randolph Road BRT, New Hampshire Ave BRT, MARC increase in trip capacity and frequency, and the Purple Line Light

Rail.[5] Refer to **DEIS, Chapter 2, Section 2.3**. Based on a comprehensive review of regional demographics and traffic data, the No Build Alternative would not address any of the significant operational issues under existing conditions and fails to accommodate any of the congestion relief metrics established for evaluating all Build Alternatives. Refer to **DEIS, Chapter 3** and **DEIS, Appendix C**. For a discussion of the basis for the Purpose and Need, refer to **Section 9.3.1** and for justification for selection of the Preferred Alternative, refer to **Section 9.3.3 C of this Chapter.**

B. Justification for Rejecting Reversible Lane Alternatives and Other Transportation Alternatives

Several comments questioned how MDOT SHA determined that any one of the reversible or contraflow lanes alternatives, identified as Alternatives 12A, 12B, 13A, 13B and 13C in the DEIS, were screened prior to inclusion as an Alternative Retained for Detailed Study (ARDS) in the DEIS or were not identified as the Preferred Alternative.

The alternatives development process was informed by numerous previous studies and planning documents, and included input from federal, state and local agencies and the public during the NEPA scoping process, refer to **DEIS, Appendix B, Section 4.1** (https://oplanesmd.com/wp-content/uploads/2020/07/DEIS_AppB_Alts_web.pdf\). Public and agency input on the Preliminary Range of Alternatives was received during the NEPA scoping process, through the alternatives screening process, and at four Alternatives Public Workshops held July 17, 18, 24 and 25, 2018 in Montgomery and Prince George's counties, Maryland.

The Preliminary Range of Alternatives were evaluated by applying the screening criteria established from the Study's Purpose and Need, using a general, qualitative assessment (as described in **DEIS, Chapter 2, Section 2.2** and **DEIS Appendix B, Section 4.1**). The Screened Alternatives retained for further consideration are described in **DEIS, Section 2.5.1** and the alternatives dropped from further consideration are identified in **DEIS, Chapter 2, Section 2.5.2**. The remaining Screened Alternatives were retained as ARDS for comparison purposes in the DEIS per NEPA requirements. The ARDS were concurred upon by the lead federal agency and most cooperating agencies. Note, M-NCPPC and the National Capital Planning Commission did not concur on the ARDS.

The use of contraflow or reversible lanes were included among the alternatives that were screened prior to consideration in the DEIS. Contraflow lanes are access-restricted lanes operating on the opposite side of a median barrier, in the opposite direction of the flow of traffic. Reversible lanes are facilities in which the direction of traffic flow can be changed at different times of the day to match peak direction of travel, typically inbound in the morning and outbound in the afternoon.

The contraflow lane alternatives, Alternatives 12A and 12B, would require conversion of existing general purpose lanes on I-495 and conversion of existing HOV lane on I-270 and require a movable barrier system to separate opposing traffic. Shifting the moveable barriers for miles of highway could take many hours to complete, thereby reducing available roadway capacity during the operational change. Additional issues with a movable barrier system include: a long duration of time and complexity of deploying the movable barrier system; communicating movable barrier operations to travelers (in both directions);

[5] Visualize 2045, pages 36-40, https://www.mwcog.org/assets/1/28/Visualize_2045_Plan_2018_10_23_No_Crops_Single.pdf

location and storage of the movable barrier during un-deployed periods; storage and maintenance of the movable barrier machines; and operations/configurations at interchanges with median piers and the numerous crossroads; and any new direct access interchanges with median ramps. Creation of the barrier system also creates substantial operational and maintenance expenses. The contraflow lane would end/exit into the existing peak period lane(s). Consequently, these lanes would likely be congested since no additional peak period capacity would be provided beyond the end of the contraflow lane. As such, the end/exit would likely create a congested merge point that would affect operations on the contraflow lane and general purpose lanes upstream.

On I-495, contraflow lanes are not conducive to travel patterns as traffic data indicates the split in peak travel is nearly equal in both directions. The creation of contraflow lanes on I-270 would have created a difficult merge for single occupancy vehicles to cross and/or merge into the existing HOV lane to enter and exit the contraflow access points. Refer to **DEIS, Chapter 2, Section 2.5.2**.

Reversible managed lanes alternatives, Alternatives 13A, 13B and 13C, would be separated from general purpose lanes by concrete barriers, as shown in the typical section figures for the Build Alternatives, refer to **DEIS, Figures 2-10 and 2-11**. Reversible lanes are more effective where there is a significant directional split in traffic. Similar to contraflow lanes, traffic data revealed that I-495 traffic is fairly evenly split by direction and peak period. As a result, the direction of traffic that is not benefitting from the reversible lanes would experience the same congestion as the No Build Alternative, and there would be no improvement in trip reliability in that direction. Additionally, switching the reversible system and ensuring that vehicles do not enter in the wrong direction (a potential safety hazard) would require extensive, daily maintenance due to the length of the improvements. On I-270, the existing HOV lane in both directions would be converted to reversible managed lanes. While the directional traffic split on I-270 is greater than I-495, many of the same operational issues would exist including losing capacity during the period when the lanes are closed to switch directions, safety concerns associated with ensuring vehicles do not enter in the wrong direction, extensive daily maintenance, and potential confusion from time-of-day restriction.

In addition to the operational and logistical issues identified above, the contraflow and reversible lanes alternatives would only provide capacity in one direction on I-495 and I-270 and therefore, would not address existing and long-term traffic growth, would not improve trip reliability, would not accommodate Homeland Security or emergency events, or improve the movement of goods and services.

C. Justification for Selecting the Preferred Alternative

FHWA and MDOT have selected Alternative 9 – Phase 1 South as the Preferred Alternative. As described in the SDEIS and this FEIS, the Preferred Alternative includes two new, HOT managed lanes on I-495 in each direction from the George Washington Memorial Parkway in Virginia to west of MD 187 and conversion of the one existing HOV lane in each direction on I-270 to a HOT managed lane and adding one new HOT managed lane in each direction on I-270 from I-495 to north of I-370 and on the I-270 east and west spurs. The Preferred Alternative includes no action or no improvements at this time on I-495 east of the I-270 east spur to MD 5 in Prince George's County. Refer to **Figure 1-1 in this FEIS**. The additional capacity and improvements proposed with the Preferred Alternative will best accommodate existing traffic and long-term traffic growth, enhance trip reliability, provide additional roadway travel choices, accommodate homeland security, and improve the movement of goods and services in Phase 1 South.

The Preferred Alternative will provide tangible operational benefits systemwide even though it includes no action or no improvements for a larger portion of the study area.

The Preferred Alternative was identified after extensive coordination with resource agencies, the public, and stakeholders to respond directly to feedback received on the DEIS to avoid or minimize residential and business displacements and impacts to significant environmental resources. Specifically, commenters and interested stakeholders stressed the pressing need to plan for and address improvements to the ALB (a major regional traffic bottleneck) as soon as possible. Many stakeholders expressed preference for the Preferred Alternative to be properly coordinated with existing and currently planned managed lane projects in Northern Virginia, up to approaches to the ALB. Other related comments focused on achieving congestion relief in the study area, while at the same time avoiding or minimizing residential and business property displacements, and public parkland impacts. Still other comments emphasized how the project should maximize multimodal transportation options in the study area. Many commenters questioned whether the effects of the pandemic might diminish or delay travel demand and congestion sufficient to support avoidance or delay of impacts to important resources. Other comments stated concerns over operational issues near the transition area between the build improvements and area of No Build on I-495. Some commented that they supported aligning the NEPA approval with the planned project phased delivery and permitting approach focused on Phase 1 South only.

Updated traffic analysis for the design year of 2045 indicates that the Preferred Alternative will provide operational benefits compared to the full No Build Alternative in six key metrics (system-wide delay, corridor travel time and speed, density and LOS, TTI, vehicle throughput, and local network delay). Refer to **FEIS, Appendix A**. The Preferred Alternative would significantly increase throughput across the ALB and on the southern section of I-270 while reducing congestion.

Identifying Alternative 9 – Phase 1 South as the Preferred Alternative was based on additional factors including:

- Further aligning with the phased delivery and permitting approach.
- Focusing improvements on Phase 1 South, including the ALB, the biggest traffic chokepoint in the region. Replacement of the bridge is part of a bi-state effort to improve mobility and would provide a seamless regional system of managed lanes by connecting to Virginia over the ALB.
- Expediting replacement of the ALB with a private funding source.
- Providing options for travel by keeping all existing free general purpose lanes.
- Reducing reliance on single occupancy vehicles by permitting buses, carpool, vanpool, and personal vehicles with three or more (3+) people to travel faster and more reliably in the new HOT lanes toll free any time of the day.
- Avoiding all residential and business displacements and avoiding and/or significantly minimizing impacts to cultural, natural and community resources within the study area.

Severe congestion on I-495 and I-270 adversely affects the regional and local roadway network, especially in and around the interchanges and arterial roads within the I-495 and I-270 Study limits. The congestion on these corridors also has negative effects on access to and usage of other transportation modes. Besides enhanced performance on I-495 and I-270 themselves, the Preferred Alternative will provide congestion relief on these facilities and will also enhance existing and proposed multimodal travel modes including bus transit by improving connectivity and mobility through enhancing trip reliability and providing additional travel choices for efficient travel during times of extensive congestion. Opportunities to enhance transit mobility and connectivity within the Preferred Alternative include direct and indirect connections via ramps from the HOT lanes to transit stations, free bus transit usage of the HOT lanes. MDOT SHA has also committed to certain regional transit improvements to enhance existing and planned transit and support new opportunities for regional transit service including increasing the number of bus bays at WMATA Shady Grove Metrorail Station and increasing parking at the Westfield Montgomery Mall Transit Center. The Preferred Alternative will also provide new or upgraded pedestrian and bicycle improvements throughout Phase 1 South considering current master plans and identified priorities from regional and local agencies.

While the Preferred Alternative offers an effective approach to addressing existing traffic and long-term traffic growth in and around the I-495 and I-270 facilities of Phase 1 South, it should be noted that the realized improvements are not as substantial as Alternative 9 in the DEIS that covered the full 48 miles. As part of the ongoing NEPA process and to address concerns raised regarding operations along the I-495 Inner Loop under the Preferred Alternative, the design has been refined and the forecasting assumptions were revisited for the FEIS, resulting in improved projected operations on I-495 and I-270 compared to what was reported in the SDEIS. Refer to **FEIS, Chapter 4, Section 4.3** for the updated results. The HOT managed lanes are now projected to achieve at least 45 mph in the design year of 2045. Projected speeds along the I-495 Inner Loop general purpose lanes between the George Washington Memorial Parkway and I-270 West Spur during the 2045 PM peak period are projected to be 15 mph, which is better than the No Build Alternative, and improved compared to the preliminary results presented in the SDEIS. Operations outside the Phase 1 South limits are projected to be similar under Build and No Build conditions, as would be expected. Identification of Alternative 9 – Phase 1 South is unlikely to preclude the need for potential future improvements on those portions of the study area, east of the I-270 east spur. The need for more comprehensive transportation improvements along I-495 has long been identified through the Study and past studies over the last few decades. If the Preferred Alternative is selected and approved by FHWA in a ROD, consideration of potential improvements to the other parts of the interstate system in the study area would advance separately. Additional required environmental studies, analysis and collaboration with the public, stakeholders and agency partners would occur at that time. Focusing now on Phase 1 South, the area with the highest levels of regional support for immediate improvements, allows MDOT SHA time to further plan for and conduct future coordination with the public on congestion relief for remaining portions of I-495 and I-270.

D. Study Alternatives Should Include or Expand on Specific Elements

Rail Transit on the American Legion Bridge

Comments suggested that the replacement of the ALB should be designed to accommodate for future rail service, drawing comparisons to the Woodrow Wilson Bridge connecting Maryland and Virginia near the National Harbor development and Alexandria, Virginia.

Unlike the Woodrow Wilson Bridge, however, the nearest Metro stops are not close to the ALB. Additionally, there has never been a regional planning study that approved the viability or practicality of rail on the ALB, partially due to the need for a higher density of households and jobs to support it. Transit across the ALB is not part of the region's CLRP (*Visualize 2045*), Montgomery County or Fairfax County master plans, or VDOT's plans for this corridor. Also, there is no existing right-of-way that could be used for rail transit on either side of the Potomac River. In order to attract sufficient ridership, a rail line along a new alignment adjacent to the ALB would need to connect to one of the Bethesda area WMATA stations to connect to the rest of the rail network. Such a new alignment would likely result in substantial residential and commercial property displacements that have been completely avoided under the Preferred Alternative and would cause substantially more impacts to nationally significant National Park Service (NPS) property and environmentally sensitive resources along the Potomac River Gorge than the Preferred Alternative.

Other practical limitations restrict the reasonableness of rail transit over the ALB. Transit ridership is driven by density of households and jobs per acre near the stations. The land uses on both sides of the ALB are not dense enough to generate ridership to support the cost of rail transit development and ongoing maintenance in that corridor. VDOT has publicly indicated that current land uses on both sides of the Potomac River lack sufficient density to support rail transit. Local area master plans would have to be dramatically amended to allow such higher-density uses in those areas. Cost is also a major factor. For many of the reasons that standalone transit options were not carried forward for detailed study in the DEIS, there is no reasonable option to pay for a rail transit solution that would connect locations on both sides of the ALB.

By contrast, regional bus commuter connections have been extensively studied. Allowing toll-free usage of the managed lanes by transit buses will make this travel option more reliable and attractive. As part of a bi-state effort, Virginia's Department of Rail and Public Transit (DRPT) and the MDOT MTA concluded a study in 2021 that identified a range of current and future multimodal solutions to reduce congestion, improve trip reliability and regional connections and enhance existing and planned multi-modal connectivity and mobility near the ALB. These solutions, including new express bus transit service from Tysons to Bethesda and Tysons to Germantown, focused on moving more people across the ALB in fewer vehicles. A series of potential investment packages were developed to provide new mobility choices to serve bi-state travel and included a combination of transit service elements, technology enhancements, Commuter Assistance Programs, and parking needs. Refer to 2021 Report. (http://www.drpt.virginia.gov/transit/major-initiatives/i-495american-legion-bridge-transit-and-tdm-study/)

In consideration of the comments received, MDOT SHA commits to designing and constructing the ALB such that a future capital improvement project will have one or more feasible options to achieve the full design and implementation of a transit line across the ALB. These options will be enabled by designing the northbound and southbound structures to not preclude a possible future transit line including the addition of foundation and substructure elements.

Bike/Pedestrian Elements Included in Preferred Alternative

Comments received indicated support for, or the need for pedestrian and bicycle facility improvements as part of the multimodal improvements with the project.

The Preferred Alternative reflects a strong commitment to bicycle and pedestrian connectivity and mobility in the study area in response to comments received throughout the NEPA process. Refer to **FEIS Chapter 3, Section 3.1.5**. Existing pedestrian and bicycle facilities impacted by the Preferred Alternative would be replaced in-kind or upgraded considering the current master plans for recommended facilities. In addition, new pedestrian and bicycle facilities identified in those plans would be constructed where adjacent connections exist. These efforts respond directly to the Purpose and Need goal of enhancing multi-modal connectivity by removing barriers to non-vehicular mobility and comments received from local agencies and stakeholders.

In response to input received from the City of Rockville, the Montgomery County Department of Transportation (MCDOT), and stakeholder organizations, the Preferred Alternative will accommodate pedestrian/bicycle facilities throughout the study area, including improvements noted in Rockville and Montgomery County current master plans and are assumed under the Preferred Alternative base design. These include:

- New sidepath (west side) and new sidewalk (east side) on Persimmon Tree Road over I-495;
- New bike lanes (both directions) and new sidepaths (both sides) on MD 190 over I-495;
- New bike lanes (both directions), new sidewalk (south side), and new sidepath (north side) on MD 191 over I-495;
- Reconstructed sidewalk (south side) and sidepath (north side) on Democracy Boulevard over I-270 west spur;
- New two-way separated bike lanes (south side), and reconstructed sidewalks (both sides) on Westlake Terrace over I-270 west spur;
- New Breezeway (south side) and reconstructed sidewalk (north side) on Montrose Road over I-270;
- Reconstructed sidewalk (south side) and shared use path (north side) on Wootton Parkway over I-270;
- New bike lanes (both directions) and new sidewalks (both sides) on MD 189 over I-270;
- New bike lanes/bikeable shoulders (both directions), reconstructed shared use path (south side), and new sidewalk (north side) on MD 28 over I-270;
- New bike lanes (both directions), reconstructed shared use path (Millennium Trail, south side), and new sidewalk (north side) on MD 189 (Falls Road);
- Construct new bike lanes in both directions of Gude Drive; reconstruct the existing shared use path (Millennium Trail) on the south side of Gude Drive; and construct a new sidewalk on the north side of Gude Drive; and
- New Breezeway (south side) and new sidepath (north side) on Shady Grove Road over I-270.

Additionally, the Preferred Alternative includes pedestrian and bicycle enhancements and new connections that are beyond the base design approach but are accounted for in the Preferred Alternative LOD. Refer to **FEIS Chapter 3, Section 3.2.2**. These include:

- Construct a new pedestrian/bicycle shared use path across the ALB to connect facilities in Maryland and Virginia;
- Widen the existing variable-width sidepath along the east side of Seven Locks Road under I-495 (Cabin John Trail); and
- Construct a new sidewalk along the west side of Seven Locks Road under I-495 to reestablish the historic connection between Gibson Grove Church and Morningstar Tabernacle No. 88 Moses Hall and Cemetery.

Transit Elements Included in Preferred Alternative

The Preferred Alternative includes multiple elements to enhance transit mobility and multimodal connectivity in furtherance of the established Purpose and Need and in response to public and agency comments supporting such elements. Refer to **FEIS Chapter 3, Section 3.1.4** and **Section 3.2.1**. These transit elements will serve to address the multi-modal mobility and connectivity need in the Purpose and Need and include:

- Allowing toll-free bus transit usage of the HOT managed lanes to provide an increase in speed of travel, assurance of a reliable trip, and connection to local bus service/systems on arterials that directly connect to urban and suburban activity centers.
- Accommodating direct and indirect connections from the HOT managed lanes to existing transit stations and planned Transit Oriented Development at the Shady Grove Metro, Twinbrook Metro, Rockville Metro, and Westfield Montgomery Mall Transit Center.

MDOT SHA has also committed to certain regional transit improvements to enhance existing and planned transit and support new opportunities for regional transit service including increasing the number of bus bays at WMATA's Shady Grove Metrorail Station and increasing parking at the Westfield Montgomery Mall Transit Center. Additional transit opportunities have been identified through the approved P3 Agreement. On August 11, 2021, MDOT and the Maryland Transportation Authority (MDTA) received approval from the Maryland BPW to award the Phase 1 P3 Predevelopment Agreement to the Selected Proposer. In accordance with the terms and conditions of the Phase 1 P3 Agreement, the Developer has proposed an estimated $300 million for transit services in Montgomery County over the operating term of Phase 1 South. Moreover, upon financial close of the Section P3 Agreement for Phase 1 South, MDOT is committed to fund not less than $60 million from the Development Rights Fee provided by the Developer for the design and permitting of high-priority transit investments in Montgomery County and MDOT is committed to deliver the Metropolitan Grove Operations and Maintenance Facility including the necessary bus fleet. Refer to **FEIS Chapter 3, Section 3.2.1** and **FEIS, Chapter 7, Sections 7.2 and 7.3**.

9.3.4 Resource Impacts Assessment Methodology and Level of Detail

Comments submitted expressed concern over the scope and level of detail offered in the DEIS and SDEIS regarding potential impacts of the various Build Alternatives, including the Preferred Alternative, to a variety of natural, cultural and community resources. Certain comments suggested that the impacts assessment in the documents was too general and that information concerning mitigation and the

resolution of project elements to address public and agency input was included too late in the NEPA process. Finally, some commenters thought that the scope and volume of the information presented was too extensive and made it difficult for the public to understand and access relevant data related to impacts of concern. The following responses address the full range of resources mentioned in these comments, explaining briefly the methodologies applied by study technical experts and the preliminary analysis results reached with respect to each resource. The response also explains how comments received throughout the NEPA process resulted in substantial modifications to the Preferred Alternative specifically to address concerns over potential impacts through implementation of avoidance, minimization, and mitigation strategies for the proposed action.

The Study fulfills the requirement to thoroughly evaluate potential impacts and allowed the agency decision-makers and the public to understand the various advantages and disadvantages of a range of reasonable alternatives. As required by the CEQ NEPA regulations, the DEIS summarized the reasonably foreseeable social, cultural, and natural environmental effects of the ARDS to a comparable level of detail and the SDEIS summarized the environmental effects of the Preferred Alternative. These analyses directly contributed to MDOT SHA's evaluation of the alternatives and to recommendations for a full suite of potential measures to avoid and minimize impacts, as well as comprehensive mitigation proposals where impacts could not be avoided.

The DEIS and SDEIS were drafted to enhance readability and accessibility for all members of the public. These documents summarized an enormous amount of underlying data and information related to the proposed action, with complete references to supporting technical reports. Stakeholders or concerned citizens could easily access the 19 technical reports appended to the DEIS and updated reports in the SDEIS to obtain a higher level of detail and specificity concerning virtually any topic related to the proposed action. These reports, comprising close to 18,000 pages in the DEIS and approximately 8,200 pages in the SDEIS including supporting documentation, detail the extensive analysis undertaken by MDOT SHA, and reviewed by FHWA and Cooperating Agencies, prior to publication of the DEIS and SDEIS. The reports reflect extensive coordination between local, state, regional and federal agencies, as well as input from the stakeholders and communities since Spring 2018. The methodologies applied to conduct the analyses reflected in those technical reports were reviewed and approved by the applicable lead federal and state agencies. Resource and regulatory agencies were also consulted on the methodologies and were afforded the opportunity to review and comment on the analyses before being conducted and once the analyses were finalized. As a result, the structure and format of the DEIS and SDEIS are consistent with federal practice.

With respect to the engineering details concerning the Build Alternatives presented in the DEIS and the Preferred Alternative in the SDEIS, this information accurately reflected the level of design available to the agency during different phases of its NEPA review and was appropriate to ascertain environmental information and potential impacts. FHWA regulations prohibit agencies from advancing to final design for a proposed action prior to completion of NEPA. Therefore, the DEIS and SDEIS were based on preliminary levels of design for the likely engineering elements of the proposed Build Alternatives. The Preferred Alternative presented in the SDEIS was refined based on additional survey information, an assessment of constructability and permanent and temporary impacts, as well as avoidance and minimization efforts resulting from interagency coordination. The SDEIS presented updated information based on the Preferred Alternative (Alternative 9 – Phase 1 South) and additional coordination that occurred in the 10

months following publication of the DEIS. The FEIS reflects further design refinements and details, including final mitigation and commitments of the Preferred Alternative, many of which directly responded to public comments (**FEIS, Chapter 7**). The public had reasonable and timely access to all this information, consistent with the usual development of project design during a NEPA review. The DEIS and SDEIS were fully accessible and available to the public for a 123-day and 60-day comment periods, respectively.

A. Limits of Disturbance

Certain comments regarding DEIS resource analyses expressed concern that the LOD for the proposed action was delineated too narrowly and that, therefore, the potential impacts described could be more intense than characterized in the DEIS, SDEIS and supporting technical documentation. In addition, some comments opined that the Developer would not adhere to the LOD as defined in the DEIS, SDEIS, and FEIS when the project advanced to final design, leading to an unrealistic assessment of potential impacts during the NEPA phase.

Initial comments during preliminary studies raised concern that the LOD would be too extensive. MDOT SHA employed a conservative approach to defining the LOD for all the DEIS Build Alternatives and Preferred Alternative. The LOD represents the proposed boundary within which all construction, mainline widening, managed lane access, intersection improvements, construction access, staging, materials storage, grading, clearing, erosion and sediment control, landscaping, drainage, stormwater management (SWM), noise barrier replacement/construction, stream stabilization, and related activities to the proposed roadway and interchange improvements. Property impacts associated with the LOD were broken into permanent (long-term) and temporary (short-term) areas. This conservative approach to defining the LOD captures the full scope of potential impacts. Moreover, the methodology used to assess impacts to a number of key resources appropriately considered a broader geographic area than the LOD immediately surrounding the anticipated construction and related activity boundaries. If the project advances to final design, it is anticipated that the design will closely adhere to the LOD defined in the FEIS, as the LOD was established to include a reasonable area to construct the Preferred Alternative. For complete graphic descriptions of the Preferred Alternative LOD across the entire span of the Phase 1 South limits, refer to the **FEIS, Appendix E**.

As noted above, the LOD is a conservative estimate of the potential area of disturbance and included a full spectrum of project elements associated with all of the DEIS Build Alternatives and the Preferred Alternative:

- Profile adjustments and roadway shifts due to mainline widening;
- Interchange ramp relocation, reconfiguration, and tie-ins due to mainline widening;
- Reconstruction of I-495 and I-270 mainline and interchange ramp bridges over water and roadways;
- Full replacement of the ALB;
- Direct access ramps and exchange ramps for access to the HOT managed lanes;
- On-site drainage and SWM, including swales, ponds, and large facilities along the roadside and within interchanges;
- Relocation of existing streams, where determined to be feasible;
- Culvert extensions, auxiliary pipes, and outfall stabilization areas;

- Noise barrier replacement/construction;
- Utility relocations;
- Avoidance and impact minimization of adjacent land uses such as: streams, wetlands, historic properties, parks, and private properties; and
- Construction access, staging, materials storage, grading, clearing, and erosion and sediment control.

The reasonableness of the LOD applied for determining resource impacts was further reinforced by performing a constructability analysis. This ensured that adequate area within the LOD was provided to construct all project elements, including bridges, retaining walls, noise walls, drainage structures, and interchange ramps, among others. Refer to **FEIS, Appendix E**, Environmental Resources Mapping.

Importantly, the methodology to determine project impacts for a variety of key natural, cultural, and socioeconomic resources considered areas beyond anticipated areas of physical disturbance, whether temporary or permanent. For example, the assessment of community impacts and environmental justice (EJ) concerns considered a broad range of jurisdictions across the study area. Refer to **FEIS, Chapter 5, Section 5.21**. Similarly, the Area of Potential Effects (APE) for purposes of analysis under Section 106 of the National Historic Preservation Act (NHPA) extended to a wider boundary and was agreed to by the Maryland State Historic Preservation Officer (SHPO) in coordination with consulting parties. Refer to **FEIS, Chapter 5, Section 5.7**. Additionally, MDOT SHA's analysis of air quality impacts also reflected, as required, a regional perspective. Refer to **FEIS, Chapter 5, Section 5.8**.

Due to extensive coordination and consultation with local, state, and federal resource agencies and stakeholders throughout the NEPA process, MDOT SHA was able to advance avoidance and minimization measures for regulated and sensitive resources and property displacements along I-495 and I-270. This process resulted in an LOD that significantly avoided and minimized impacts associated with the DEIS Build Alternatives while appropriately addressing a wide range of water resources, parkland, and historic and/or cultural resources. MDOT SHA accomplished this through a number of approaches, including the elimination or relocation of managed lane access points, shifting the centerline alignment, reducing lanes, changing interchange configurations and other design refinements. Refer to **DEIS, Appendix B**, Alternatives Technical Report, **SDEIS, Chapter 2** and **FEIS, Chapter 3**. For the environmentally sensitive area surrounding the ALB, a separate "Strike Team" of national and state design, bridge and constructability experts was convened to develop and evaluate alternatives for replacement of the ALB to avoid and minimize overall impacts to the Chesapeake and Ohio Canal National Historical Park, Clara Barton Parkway, and the George Washington Memorial Parkway. Refer to **SDEIS, Chapter 4, Section 4.4**.

An important benefit to conducting a P3 process with pre-development work concurrent with the NEPA process is to increase efficiency by receiving input by the Developer on design and ancillary elements of the project such as SWM. This collaborative effort ensures that the design and associated LOD are appropriate and feasible ahead of final design. While additional LOD changes may occur during final design, including additional avoidance and minimization, the risk of substantial changes in the LOD or substantial increase in environmental impacts is significantly lowered by the early involvement of the Developer. Additionally, monetary incentives have been added to the Developer's Technical Provisions to encourage further avoidance and minimization of impacts to wetlands, waterways, forest, and parkland.

Overall, the conservative approach to defining the LOD for impact assessment was conducted with the goal of first accurately defining the likely construction of all foreseeable elements of the proposed action, and then continuously encouraging engineering techniques aimed at avoiding and reducing impacts to the greatest extent practicable.

B. Traffic Modeling and Analysis

Many comments addressed the methodology and interpretation of MDOT SHA's traffic modeling, and how the results of those analyses influenced the recommendations concerning selection of a Preferred Alternative. These comments ranged from fairly broad questions about the process by which future congestion for all the ARDS was analyzed, to concerns over the relative benefits of the ARDS in light of data produced from the modeling results. The following response addresses the general topics raised in the majority of public comments focused on traffic modeling. To see all comments received and responses, refer to **FEIS, Appendix T**.

Methodology and Inputs Used for NEPA Analysis of Traffic Impacts

Throughout the Metropolitan Washington, D.C. Region, FHWA, MWCOG and MDOT SHA have established a consistent approach to project level traffic analysis. That is, the methodology implemented for this Study is consistent with other similar MDOT projects and was reviewed and approved by FHWA when this NEPA process was initiated.

The methodology of traffic analysis involved two primary steps: (1) projecting future traffic volumes using the MWCOG regional forecasting model, and (2) running a traffic simulation model using the VISSIM program to evaluate the projected operations under each Build Alternative compared to the No Build Alternative as a baseline. The general methodology and assumptions applied to the analysis are summarized in **Chapter 4 of the FEIS** and discussed in greater detail in **FEIS, Appendix A**. The analysis used state-of-the-practice models that were validated and calibrated specifically for the Study.

Some comments questioned whether MDOT SHA used the most up-to-date version of the models and available data available throughout the NEPA process. As typical practice, the best available models were used, and information was updated during the course of the Study. When the Traffic Relief Plan was first announced, developers of the MWCOG model worked directly with the MDOT SHA Travel Forecasting and Analysis Division (TFAD) to update the regional MWCOG model for project-level use as part of the Study. The result was a series of models and deliverables (technical memos) to TFAD summarizing the MWCOG methodology and findings. Refer to **DEIS, Appendix C, Attachment C**. MWCOG and TFAD produced a series of memoranda detailing the use of updated models released in November 2017 to represent the possible development of dynamically-priced or managed lanes and to assist with the 2040 No Build model, and how the models were developed for the three main build alternative scenarios.

As set out in these memoranda, the forecasting modeling used by MWCOG "…is one of several steps in the evaluation of alternatives, and the data generated by the TPB staff will be further refined [by MDOT SHA] using additional data sources and techniques…" Coordination between MDOT SHA and MWCOG staff as documented in **DEIS, Appendix C** demonstrates how MDOT SHA was expected to use the data to assess alternatives as they were identified and modified during the NEPA process.

When the modeling process began, Version 2.3.70 and Version 2.3.71 of the MWCOG model included forecasts to an "out year" of 2040. Therefore, a design year of 2040 was used by MDOT SHA for evaluation of alternatives in the DEIS. During project development, in the Fall of 2018, a new version of the MWCOG model (Version 2.3.75) was adopted. This version included forecasts performed at five-year intervals out to the year 2045. While it was too late to incorporate the new forecasts into the DEIS, following coordination with FHWA, MDOT SHA agreed to use the updated forecasts and a design year of 2045 in subsequent NEPA documents. Therefore, the SDEIS forecasts were updated to the 2045 design year using the updated model for the SDEIS. To be consistent, Version 2.3.75 of the MWCOG model was also used to develop forecasts for the FEIS and MDOT SHA's Application for Interstate Access Point Approval and based on design refinements that occurred between the SDEIS and FEIS. Refer to Position Paper from MDOT SHA to FHWA dated September 18, 2018, which is included as part of Appendix J (Forecast Comparison Memo) of the Traffic Technical Report in the **DEIS, Appendix C**.

While MWCOG adopted Version 2.3.78 in 2020, that version did not change the design year from 2045 and therefore, the latest model continues to be consistent with the analysis utilizing Version 2.3.75.

Induced Demand

Many comments focused on the potential for any of the Build Alternatives, providing increased travel capacity, to encourage additional traffic, thereby diminishing the effectiveness of the proposed improvements. This concept, called induced demand, is a consideration on all of MDOT SHA's large roadway projects. As explained in **DEIS, Appendix C**: "Induced demand refers to newly generated trips that would not exist without capacity improvements to the transportation network."

Under this Study, MDOT's goal was not to increase demand but to address current and predicted demand. Current and predicted demand in the study area could be met by adding many additional new lanes and while MDOT SHA considered adding additional general purpose lanes during the alternatives screening process, the agency ultimately recommended capacity via managed lanes. This fundamental difference is crucial to understanding why the traffic analysis (in **FEIS, Appendix A**) shows only a very modest increase in traffic through induced demand.

Most importantly, managed lanes do a better job at regulating overall travel demand, including induced demand, due to dynamic pricing. As explained in the DEIS, dynamic pricing means that as the demand for use of the managed lanes increases, the rate charged for access to the lanes also increases. This tends to regulate uses of the managed lanes in order to permit them to operate in a free-flow of traffic and at general speed of at least 45 mph. Refer to the Tolling Response in **Section 9.3.6 of this Chapter**.

The traffic analysis shows that there could be some induced demand as a result of this project, but the impact will be small (*less than 1 percent increase* in VMT in the region) and those effects are fully accounted for in the regional traffic models used in the Study developed by MWCOG. Even with these effects, the proposed managed lanes would reduce regional congestion delays and significantly improve travel times along both the I-495 and I-270 in Phase 1 South limits and on local roads throughout the study area.

This relatively modest increase of induced demand can also be explained by several factors related to existing conditions in the study area. First, there is very little undeveloped land surrounding the Phase 1 South study area and, therefore, the traffic models account for the negligible anticipated land use changes. As the traffic analysis details, new housing areas and/or places of employment (usual causes of additional trip generation) are not expected to be developed as a result of the project. Because the area in and around Phase 1 South is largely built out or otherwise protected from additional development, the likelihood of additional new trips is minimized.

Second, as the existing conditions and the anticipated No Build scenarios described in the DEIS demonstrate, the highway facilities in question are already extremely congested. The anticipated future growth of traffic demand is already very high, and largely dependent on already anticipated population and economic growth in the region. Congestion on I-495 also reflects not only local trips, but a substantial regional demand for travel on that facility as a major connection for I-95. As a result, most of the travel demand for these roads already exists.

Finally, important elements of the proposed action itself will have the tendency to reduce induced demand. Specifically, there is a strong potential for the managed lanes to encourage transit usage for express buses, as well as HOV and car and/or vanpool rides. This potential should assist in managing induced demand for single-occupancy vehicles. As the DEIS, SDEIS, and FEIS describe, the transit and HOV elements of the proposed action can serve more person-trips without necessarily increasing the number of vehicles (induced demand) in the system as a whole. **Refer to Section 9.3.2 B for a response on Transit Alternatives and Sections 9.3.3** on the Preferred Alternative response.

Expected Traffic Benefits of the Proposed Action

Some comments questioned whether the traffic benefits associated with the Preferred Alternative would be worth the cost and inconvenience associated with building the project. They also noted that the results continue to show congestion on the top side of I-495 and on I-270 north of I-370.

In short, the traffic and congestion benefits are substantial. The Preferred Alternative is projected to provide meaningful operational benefits to the system even though it includes no action or no improvements for a large portion of the study area to avoid and minimize impacts. Although the Preferred Alternative provides less improvement to traffic operations when compared to the Build Alternatives that included the full 48-mile study limits evaluated in the DEIS (such as Alternatives 9 and 10), it was chosen based in part on feedback from the public and stakeholders who indicated a strong preference for eliminating property and environmental impacts on the top and east side of I-495.

The Preferred Alternative will significantly increase throughput across the ALB and on the southern section of I-270 while reducing congestion. It would also increase speeds, improve reliability, and reduce travel times and delays along I-495, I-270, and the surrounding local roadway network compared to the No Build Alternative, as shown in the following table, which summarizes traffic analyses from the FEIS.

Table 9-1: Traffic Benefits of Preferred Alternative vs. No Build Alternative-Entire Study Area

METRIC	TIME PERIOD	IMPROVEMENT
Network-Wide Average Delay Reduction vs. No Build	AM PEAK	13%
	PM PEAK	38%
Total Local Network Delay Reduction vs. No Build	DAILY	3.5%
American Legion Bridge Throughput Increase vs. No Build	AM PEAK	25%
	PM PEAK	30%
I-270 at Montrose Road Throughput Increase vs. No Build	AM PEAK	10%
	PM PEAK	15%

The northern section of I-270 from I-370 to I-70 is part of a separate, independent planning study under the I-495 and I-270 P3 Program. Improvements are needed in the northern section of I-270 with or without the improvements being considered under the Study.

Traffic on Local Network and Arterials Adjacent to the Study Corridors

Many comments expressed concern that the increased capacity on I-495 and I-270 and development of direct access to the managed lanes could have the adverse impact of worsening traffic on local roads, especially those connecting to the interstate facilities. Specifically with respect to the local roadway network related to the Build Alternatives, information in the DEIS was based on preliminary design that did not include direct access at Gude Drive or Wootton Parkway. Since that time, MDOT SHA has coordinated with various stakeholders, including the City of Rockville, and has updated the design to include direct access connections to the managed lane system at these two interchanges. The results presented in the SDEIS and FEIS account for these updates.

The results indicate that the net impact of the Preferred Alternative will be an overall reduction in delay on the surrounding arterials, including a 4.8 percent reduction in daily delay on the arterials in Montgomery County, despite some localized increases in arterial traffic near the managed lane access interchanges. The portions of the local road network with an anticipated increase in volumes were evaluated in more detail as part of this FEIS, and mitigation was proposed where needed to maintain acceptable operations and safety per FHWA Interstate Access Point Approval guidelines. In addition, based on follow-up meetings between MDOT SHA and Rockville, additional improvements were considered and incorporated where feasible, including modifications to the right-turning movement from the I-270 off-ramp onto eastbound MD 189, additional turn lanes at Wootton Pkwy at Seven Locks Road, and additional turn lanes at Gude Drive at Research Boulevard. All these enhancements will help manage and/or improve the function of the local roadway network.

MDOT SHA's Application for Interstate Access Point Approval (**FEIS, Appendix B**) evaluated 60 different existing intersections located on adjacent arterials throughout the local roadway network to determine the projected operations and LOS with and without the Preferred Alternative. The results indicated that fewer intersections are projected to operate at LOS "F" (failing operations) under Build conditions than under No Build conditions in both the 2045 AM peak period and the 2045 PM peak period.

As noted in the SDEIS, the Preferred Alternative includes no action or no improvements at this time on I-495 east of the I-270 spur to MD 5 in Prince George's County. Refer to **FEIS, Figure 1-1.** The potential impacts to local roads raised in many comments focused on those areas that will not see improvements to the major highway facilities across the study area. Any potential improvements to local roads adjacent to those areas are no longer included in the project. Any future proposal for improvements to the remaining parts of I-495 within the study limits, outside of Phase 1 South, would advance separately and would be subject to additional environmental studies, analysis, and collaboration with the public, stakeholders, and agencies.

C. Parkland and Historic Resources

Section 4(f) Evaluation

Comments raised concerns about impacts to specific park properties and questions regarding the adequacy of the Section 4(f) evaluation, which focuses on impacts to certain protected resources, including parklands and historic sites. Some comments suggested MDOT SHA and FHWA did not fulfill the statutory and regulatory requirements for protection of parkland or historic resources. The following response summarizes FHWA and MDOT SHA's comprehensive analyses of the proposed action's potential parkland and historic resource impacts, efforts to avoid and minimize those impacts through engineering design and alternatives modification, and coordination with Officials with Jurisdiction (OWJ) of parkland and historic sites to determine appropriate mitigation for unavoidable impacts.

Section 4(f) of the U.S. Department of Transportation (USDOT) Act of 1966 as amended (49 United States Code [U.S.C.] 303(c)) is a Federal law that protects significant publicly-owned public parks, recreation areas, wildlife and/or waterfowl refuges, or any significant public or private historic sites. Section 4(f) applies to all transportation projects that require funding or other approvals by the USDOT. As a USDOT agency, FHWA must comply with Section 4(f) and its implementing regulations at 23 CFR 774. The Draft Section 4(f) Evaluation for the proposed action was appended to the DEIS (**DEIS, Appendix F**) and summarized in Chapter 5 of the DEIS with updated information related to the Preferred Alternative summarized in Chapter 5 of the SDEIS. The Final Section 4(f) Evaluation can be found in **FEIS, Appendix G,** and **FEIS Chapter 6**.

Selection of the Preferred Alternative was based in part on extensive coordination with and input from agencies and stakeholders, including the OWJs for Section 4(f) properties. Refer to **DEIS, Chapter 5; SDEIS, Chapter 5;** and **FEIS, Chapter 6**. Agency and stakeholder comments on the DEIS and Draft Section 4(f) Evaluation specifically requested avoidance of parkland and historic resources within the study area. The Preferred Alternative is responsive to the comments received and aligns the Study to be consistent with the phased delivery and permitting approach, which limits the build improvements to Phase 1 South and avoids improvements on I-495 east of the I-270 east spur. The result is complete avoidance of a substantial number of Section 4(f) properties and a large reduction of parkland acreage impacts within the Study

limits (over 100 acres). Design refinements have progressed since the Preferred Alternative was identified, resulting in additional avoidance and minimization of impacts.

A total of 111 Section 4(f) properties were originally identified within the corridor study boundary, including public parks and recreation areas and historic sites. The DEIS described that 68 of the 111 Section 4(f) properties would have had a Section 4(f) use (impact). Since the SDEIS, impacts to two additional parks were avoided including Cabin John Stream Valley Park (Rockville) and Morris Park based on further design refinements. One additional Section 4(f) property was identified (the Washington Biologists' Field Club [WBFC] on Plummers Island) bringing the final total to 20 properties. The Preferred Alternative requires use of a total of 33.2 acres from 20 Section 4(f) properties and avoids the use of approximately 114 acres of Section 4(f) properties compared to the Build Alternatives in the DEIS.

Engineering modifications to the Preferred Alternative design described in the FEIS have resulted in large reductions of impact to several of the most significant parks and historic properties in the study area. Refer to **FEIS Chapter 3, Section 3.1.2** and **FEIS Chapter 5, Section 5.4**. For example, impacts to the George Washington Memorial Parkway were reduced by 7.8 acres, with only 0.6 permanent acres of use remaining. Impacts to the Chesapeake and Ohio Canal National Historical Park were reduced by 5.3 acres, with that park expected to experience only 1.0 acre of permanent impacts. Additionally, impacts to the historic Morningstar Tabernacle No. 88 Moses Hall Cemetery have been completely avoided under the Preferred Alternative.

Of the Section 4(f) properties with some use as a result of the proposed action, 13 are proposed for and anticipated to receive *de minimis* impact determinations. Refer to **Chapter 6, Section 6.2** and **FEIS, Appendix G**. Pursuant to FHWA Section 4(f) regulations (23 CFR 774. 3), an impact to a significant public park, recreation area, wildlife and waterfowl refuge or historic resources may be determined to be *de minimis* if the transportation use of the Section 4(f) property, including incorporation of any measure(s) to minimize harm (such as any avoidance, minimization, mitigation, or enhancement measures), does not adversely affect the activities, features, or attributes that qualify the resource for protection under Section 4(f).

Prior to making a Section 4(f) *de minimis* impact determination, public notice and opportunity for public review is required. For historic resources, MDOT SHA has notified the Maryland Historical Trust (MHT) and consulting parties of the intent to make a *de minimis* impact determination via letters as part of the Section 106 process. For park resources, the opportunity for public notice and review is occurring as part of the NEPA public review and comment process, as the intent to make a *de minimis* impact determination has been documented in the Draft, Updated Section 4(f) Evaluation and Final Section 4(f) Evaluation. All public comments on the DEIS, SDEIS, and subsequent opportunity for public review related to the intent to make *de minimis* impact determinations were provided to the OWJs. In addition, the MDOT SHA sent a request for written agreement from each OWJ that the impacts to specific parks will not adversely affect the features, attributes, or activities qualifying those properties for protection under Section 4(f). The OWJs have concurred with multiple 4(f) de minimis applications, as required by regulation. This concurrence does not mean the OWJ supports the Preferred Alternative as defined in the FEIS. Section 4(f) compliance and a *de minimis* impact determination is separate and distinct from other federal requirements and should not be construed as the OWJ supporting the Preferred Alternative. Refer to **FEIS**, **Appendices I and S** for copies of this correspondence.

The DEIS presented measures that had been identified to ensure all possible planning to minimize harm and mitigate for adverse impacts and effects. Refer to **DEIS, Appendix F, SDEIS, Section 5.4,** and **FEIS, Appendix G**. Additional minimization and mitigation efforts have been implemented in conjunction with the Preferred Alternative, as described in the Updated Section 4(f) Evaluation. **SDEIS, Chapter 5** and Final Section 4(f) Evaluation **FEIS, Appendix G**. More specifically, MDOT SHA has identified and will pursue the acquisition of replacement parkland in coordination with NPS, M-NCPPC, the City of Rockville, and the City of Gaithersburg as potential mitigation for parkland impacts. MDOT SHA has also identified other mitigation opportunities in close coordination with the OWJ, including improvements to park facilities and amenities, tree planting and invasive species removal, water quality improvements, ecological restoration, among others. Refer to **FEIS, Chapter 7**. Because NPS-owned parkland is also historic, the use would also be consistent with stipulations identified in the Section 106 Programmatic Agreement (PA) and would be coordinated with the MHT and Section 106 consulting parties. Refer to **FEIS, Appendix J** for the PA.

Final mitigation commitments are included in the Final Section 4(f) Evaluation and in the FEIS. Refer to **Chapter 7** and **FEIS, Appendix G**. The final commitments include all possible planning to minimize harm.

Section 106 Process

Several comments raised questions regarding the impacts to cultural or historic resources and compliance with Section 106 of the NHPA process and/or the sufficiency of the Cultural Resources Technical Report appended to the DEIS.

Consideration of the Study's impacts to cultural and historic properties is being done in compliance with Section 106 of the NHPA of 1966, as amended (56 U.S.C. 306108), and its implementing regulations (36 CFR Part 800). The location of historic properties is shown in the **DEIS, Appendix D, Environmental Resource Mapping**, as updated in the **SDEIS, Appendix D**, and **FEIS, Appendix E**. For documents available to the public, specific archaeological site location information is redacted as required by Section 304 of the NHPA.

MDOT SHA and FHWA's Section 106 review for the proposed action has demonstrated thorough consultation and coordination with stakeholders with an interest in cultural resources. These efforts included consultation with the SHPOs: MHT and the Virginia Department of Historic Resources (VDHR), and other agency and community group consulting parties. The Preferred Alternative avoids many of the significant cultural and historic properties documented in the DEIS, having taken into account the consultation process and public comments received. The Section 106 consultation and current status are described in greater detail, below.

Per consultation requirements at 36 CFR 800.4(a)(1), MDOT SHA, on behalf of FHWA, first established the APE to identify historic properties in consultation with the SHPOs. The APE includes the LOD where direct, physical effects to historic properties could occur and an additional 250-foot buffer on either side of the LOD to account for potential audible, visual, or atmospheric effects that are not considered physical impacts. Since the development of the APE as presented in the DEIS, MDOT SHA coordinated with the MHT, VDHR, and consulting parties, and has updated the APE on an ongoing basis to account for design refinements and new information, including the reduced Phase 1 South LOD. MHT concurred with the most recent APE revisions on May 2, 2022.

Due to the complexity and wide scope of the Study, the Section 106 process has concluded through a PA, as described at 36 CFR Part 800.14[b]. (Refer to **FEIS, Appendix J**.) The PA provides protocols for additional consultation, historic properties identification, effects assessment, and adverse effects resolution as design advances. The PA includes mitigation for properties that would experience an adverse effect under the proposed action, and where design cannot be adjusted to avoid adverse effects. Typical Section 106 mitigation for architectural resources could include, but is not limited to, elements such as: context-sensitive design, creation of interpretive materials, documentation, or property-specific initiatives. MDOT SHA cultural resource specialists, will oversee implementation of the PA as the project continues into final design and construction.

Pursuant to the Section 106 regulations, FHWA notified the Advisory Council on Historic Preservation (ACHP) of this anticipated PA in March 2018, and ACHP confirmed their participation in consultation for this undertaking in May 2018. On March 31, 2022, MDOT SHA provided additional consultation materials including an additional revision to the APE for the Preferred Alternative for MHT review and concurrence and a third draft of the PA to MHT, VDHR, and consulting parties for review and comment. MDOT SHA also requested MHT's agreement that effects to Morningstar Cemetery would be deferred through the PA until further investigations of the Preferred Alternative LOD are completed. MDOT SHA received consulting parties' comments on the PA on April 14, 2022. MDOT SHA received MHT concurrence on the revised APE and agreement with the deferral the determination of effects to Morningstar Cemetery to the PA on May 2, 2022. MDOT SHA submitted a final PA for signature on May 17, 2022. The PA is included in the **FEIS, Appendix J**.

Historic Architectural Resources

MDOT SHA has determined that there are 29 National Register of Historic Places (NRHP)-eligible or listed historic architectural properties within the revised APE of the Preferred Alternative, 25 that would not be adversely affected and four that would be adversely affected. For the 25 properties that would not be adversely affected, there would be either no appreciable alteration to these properties at all, or they would experience a slight alteration to the characteristics that qualify them for inclusion in the NRHP, with no diminishment of these characteristics. The four historic architectural properties (including NRHP-eligible or listed parks and parkways) within the revised APE that fall within the Preferred Alternative LOD and would experience an adverse effect, include: George Washington Memorial Parkway/Clara Barton Parkway; Chesapeake and Ohio Canal National Historical Park; WBFC on Plummers Island; and Gibson Grove A.M.E. Zion Church. No properties are proposed for complete demolition or destruction but contributing features of some properties would experience physical impacts of varying degrees. Refer to **FEIS, Chapter 5, Section 5.7**.

After publication of the DEIS, considerable avoidance and minimization efforts were undertaken to address impacted Section 106 properties around the ALB, which are resources owned and operated by the NPS. MDOT SHA and FHWA met with the NPS on December 8, 2020, to discuss the LOD in the vicinity of the ALB that was presented for the Build Alternatives in the DEIS. The NPS requested that MDOT SHA re-assess the LOD near the ALB to limit impacts to NPS land and its natural and cultural resources. MDOT SHA convened an 'ALB Strike Team' composed of national and local experts on bridge design, constructability, natural resources, and cultural resources. The ALB Strike Team conducted an intensive investigation in January 2021 to explore alternative design solutions, project phasing solutions, site access

solutions, and the potential use of specialty construction techniques to minimize the LOD. The ALB Strike Team presented its results to the NPS on February 8, 2021. These efforts were described in the **SDEIS, Chapter 2, Section 2.3.4.C** and **FEIS, Chapter 5, Section 5.4.3**.

After field analysis, a review of known engineering information, and preliminary construction considerations, MDOT SHA and the ALB Strike Team determined that access to the site at river level could be consolidated to the northwest quadrant of the Potomac River along Clara Barton Parkway, eliminating the construction access from the other three quadrants around the bridge and significantly reducing impacts to NPS land. This approach would be achieved by constructing a temporary construction access road from the Clara Barton Parkway in the northwest quadrant within the Chesapeake and Ohio Canal National Historical Park that would include installing a temporary bridge over the Chesapeake and Ohio Canal and a temporary access road paralleling the Chesapeake and Ohio Canal towpath. The LOD needed from the George Washington Memorial Parkway was also reduced and is now confined to the following areas:

- Small strip of land along the I-495 inner loop lanes to accommodate a retaining wall and shared use path;
- A small area in the southeast quadrant of the ALB Bridge for pier and superstructure construction activities;
- Small strip of land just north of the westbound George Washington Memorial Parkway lanes for placement of signage in advance of the I-495 interchange; and
- Approximately nine isolated areas along the George Washington Memorial Parkway for removal of existing signs and the installation of new signing.

Refer to **FEIS, Appendix E**, **Environmental Resource Mapping**. Impacts to the George Washington Memorial Parkway, Clara Barton Parkway and Chesapeake and Ohio Canal National Historical Park as a result of the Preferred Alternative decreased by 13.2 acres, collectively from the DEIS impacts.

In September 2021, MDOT SHA provided an eligibility determination for the WBFC on Plummers Island to MHT and consulting parties. Refer to **SDEIS, Table 4-18**. The historic property boundary for the WBFC property is equal to the boundary of Plummers Island and is entirely within the boundaries of the Chesapeake and Ohio Canal National Historical Park, but the WBFC has individual, independent significance. Despite extensive minimization efforts, impacts to Plummers Island could not be completely avoided due to the construction and structural requirements for the bridge pier locations. The LOD on Plummers Island immediately adjacent to the ALB will result in approximately 0.28 acres of impacts to the Island, of which less than 0.1 acres would be permanent impact and 0.27 acres would be temporary impact. Impacts to Plummers Island would be required for the ALB substructure, including permanent use for three, discrete, approximately 10-foot-diameter pier foundations and temporary, construction activities. Temporary construction activities may include efforts such as excavation, access for demolition of existing bridge foundation and piers, and slope protection. Access to the existing and proposed piers is required for these activities. Although the majority of the historic features of the WBFC are outside the LOD, the proposed construction activities at the western edge of Plummers Island will alter the natural landscape of the island, a character-defining feature of the WBFC, resulting in diminishment of the property's integrity of setting.

Since the publication of the DEIS, additional and successful avoidance and minimization efforts also involved the Morningstar Tabernacle No. 88 Moses Hall and Cemetery. Through additional investigation and survey including ground-penetrating radar (GPR), MDOT SHA identified potential unmarked graves within state-owned right-of-way adjacent to I-495. The Preferred Alternative incorporates design refinements that minimized the overall width of the improvements to completely avoid the cemetery property and the area of state-owned right-of-way that has the potential for unmarked graves. See additional discussion below regarding this important resource.

Lastly, the Preferred Alternative described in the SDEIS completely avoids many significant historic properties documented in the DEIS, including, but not limited to: Baltimore-Washington Parkway; Greenbelt Park; Glenarden Historic District; Indian Spring Club Estates and Indian Spring Country Club; National Park Seminary/Forest Glen/Walter Reed A.C.C. Annex; Rock Creek Stream Valley Park; and Sligo Creek Parkway. On September 8, 2021, MDOT SHA requested concurrence that the historic properties that are now outside of the APE would experience no adverse effect, and MHT concurred with this finding on October 8, 2021.

Historic Cemeteries

Two historic cemeteries in Maryland have been identified within the APE, Morningstar Tabernacle No. 88 Moses Hall and Cemetery and Montgomery County Poor Farm Cemetery. The Morningstar Tabernacle No. 88 Moses Hall and Cemetery (M: 35-212) is located on the west side of Seven Locks Road, south of I-495, and was closely associated with the Gibson Grove A.M.E. Zion Church community. As mentioned above, the parcels containing the known location of NRHP-eligible Morningstar Tabernacle No. 88 Moses Hall and Cemetery would be completely avoided based on design refinements incorporated into the Preferred Alternative.

On May 27, 2021, MDOT SHA submitted a technical report (**FEIS, Appendix I, Volume 9**) documenting the non-invasive investigations at Morningstar Tabernacle No. 88 Moses Hall and Cemetery to aid in the development of avoidance, minimization, and treatment approaches in the PA. Additionally, MDOT SHA conducted a GPR survey at Morningstar Tabernacle No. 88 Moses Hall and Cemetery (M: 35-212), including the adjoining state-owned right-of-way, and provided the results to MHT and consulting parties on September 8, 2021. As mentioned, MDOT SHA adjusted the Preferred Alternative LOD near the cemetery to avoid the areas where GPR indicated a potential for grave features and included additional buffer around this area within state-owned right-of-way to avoid potential impacts. Based on the current historic boundary, the Preferred Alternative will avoid direct impacts to the Morningstar Tabernacle No. 88 Moses Hall and Cemetery. Additionally, no atmospheric, audible, or visual effects to the property have been identified from the Preferred Alternative. No diminishment of location, design, setting, materials, workmanship, feeling or association has been found in these areas. The project will be governed by a PA, including a treatment plan that specifies the methods, limits and consultation procedures for further investigation of areas with the potential for additional burials outside of the current historic boundary, no specific determination of effects to the Morningstar Tabernacle No. 88 Moses Hall and Cemetery will be made at this time, and will be made following completion of the additional investigations specified in the PA and treatment plan. (Refer to **FEIS, Appendix J**).

The Montgomery County Poor Farm Cemetery (18MO266) is located along I-270 and was associated with the Montgomery County Almshouse. Archaeological remains of the Poor Farm Cemetery were identified in 1984, and salvage archeology was later conducted in 1987 when a small number of remains were identified and reinterred. An unknown but large number of interments were relocated from the Poor Farm Cemetery during construction of I-270, and an unknown number of unidentified remains may remain within the LOD. Because the boundaries of the Poor Farm Cemetery are poorly understood and no marked graves remain, MDOT SHA will fully investigate and treat the LOD with exact methods to be determined through consultation under the PA. Methods will likely include full removal of topsoil in areas identified for impact to identify and relocate burials which cannot be avoided. Since the DEIS and SDEIS, the LOD in the southeast quadrant of I-270 and Wootton Parkway has been significantly reduced to minimize the potential of impacting archeological remains.

Due to the complexity and wide scope of the Study, the Section 106 process has concluded through the finalization of a PA, as described at 36 CFR Part 800.14[b]. (Refer to **FEIS, Appendix J**.) The PA provides protocols for additional consultation, historic properties identification, effects assessment, and adverse effects resolution as design advances. MDOT SHA will oversee implementation of the PA as the project continues following the ROD.

Archaeological Resources

The effects assessment anticipates the Preferred Alternative would have an adverse effect on all six NRHP-eligible archaeological resources located within the LOD. Archaeological resources outside the LOD would not be affected and no additional investigations to determine eligibility would be conducted for those sites. MDOT SHA has identified six archeological properties that are adversely affected: Dead Run Ridges Archeological District, three individual sites that contribute to the Dead Run Ridges Archeological District in Virginia and two archaeological sites in Maryland. Refer to **FEIS, Chapter 5, Section 5.7**.

For the known NRHP-eligible archaeological resources located within the LOD of the proposed action, the Section 106 consultation process will continue to assess anticipated effects and evaluate options to avoid, minimize, or mitigate such effects.

MDOT SHA recorded the agreed-upon terms and conditions in the PA to resolve adverse effects to the following affected archaeological resources: 18MO749, 18MO751, and Dead Run Ridges Archaeological District (which includes individually listed and contributing sites 44FX0374, 44FX0379, and 44FX0389). These commitments include a flexible treatment plan to be incorporated by reference into the PA. Section 106 mitigation for unavoidable adverse effects to archaeological resources will include: recovery of archaeological data through excavation, reporting, and public interpretation of archaeological results.

Refer to **FEIS, Appendix J**.

D. Equity/Environmental Justice

Comments received on the DEIS and SDEIS suggested that the analysis of impacts to EJ populations (minority and/or low-income populations) was insufficient in that a final conclusion was not made and that impacts and mitigation were not available. Other comments suggested that outreach to EJ

populations was lacking or was not adequately documented. Finally, some comments received focused on specific impacts to EJ communities such as air quality and tolling.

Outreach to and Engagement with Environmental Justice Communities

The DEIS, SDEIS, and FEIS summarize the comprehensive community outreach and engagement strategies and in-depth analyses developed by MDOT SHA to ensure equal access to relevant study information and to identify and address potential impacts to minority and low-income communities pursuant to federal requirements. These strategies reflected federal policy and guidance regarding EJ pursuant to Executive Order 12898, USDOT Order 5610.2(c), FHWA Order 6640.23A, and FHWA Guidance on EJ and NEPA (2011).

The public participation elements of the NEPA process provide an opportunity to promote equity and EJ concerns by ensuring minority and low-income communities (EJ populations) have access to and receive information concerning the proposed action and the potential impacts on those communities. However, even more concentrated outreach efforts can effectively identify community concerns and inform agency decision-makers regarding project elements and potential mitigation specifically geared to protected communities.

In addition to the overall efforts to encourage public participation in the Study (refer to the Public Involvement response **Section 9.3.7** of this chapter), MDOT SHA implemented a comprehensive strategy to ensure complete access to information to the broadest scope of identified EJ populations in the study area. Refer to **DEIS, Chapter 4, Section 4.21.3; DEIS Appendix E, Community Effects Assessment and Environmental Justice Analysis Technical Report; SDEIS, Chapter 4 Section 4.21.2 (D); FEIS Chapter 5, Section 5.21;** and **FEIS, Appendix F**.

Among other efforts employed to promote outreach to EJ populations, listed below are key outreach methods conducted:

- Mailed flyers in English, Spanish, Amharic, and French[6] flyers to approximately 200 affordable housing complexes, schools, and places of worship[7] in the study area.
- Uploaded to the project website the DEIS and SDEIS Executive Summaries translated into Spanish, Amharic, French, Chinese, and Korean.
- Provided hard copies of the translated DEIS and SDEIS Executive Summaries at the DEIS viewing locations.
- Spanish language advertisements in *El Tiempo Latino*, *Washington Hispanic*, and on eltiempo.com.
- Additional County outreach:
    - Montgomery County News press release;
    - Inclusion in Montgomery County Executive's weekly newsletter;
    - Inclusion in MCDOT's bi-weekly newsletter and social media posts;
    - Distribution of flyer via M-NCPPC Prince George's County Planning email databases;

[6] Spanish, French, and Amharic are the top primary languages of English for Speakers of Other Languages learners in both counties.
[7] Includes EJ area schools with above-average participation in the Free and Reduced-price Meals Program; places of worship in EJ areas; and all affordable-housing complexes within the study area.

        - Planning Department listserv with approximately 19,200 email addresses;
        - Community Association listserv with approximately 700 email addresses;
    - Inclusion in Prince George's County social media posts; and
    - Coordination with Prince George's County Faith-Based Advisory Board to distribute information to their ministry listserv with approximately 70 email addresses.
- Additional translation of flyer to Simplified Chinese, Korean, Malayalam, Punjabi, Tagalog, and Yoruba, uploaded to the project website, and distribution of hard copies to groceries largely serving immigrant communities in both Montgomery and Prince George's Counties.

Refer to **SDEIS, Section 4.21.2**, and **FEIS, Chapter 5, Section 5.21**.

Since publication of the DEIS, an EJ Working Group was formed in response to agency input. Agency members of the EJ Working Group include: MDOT SHA, FHWA, USEPA, Maryland Department of Planning, M-NCPPC, MCDOT, and Prince George's Department of Public Works and Transportation. The goals of the EJ Working Group included identifying additional engagement opportunities to identify community concerns and to identify potential community betterments that could be incorporated into the project. Three meetings of the EJ Working Group were held in 2021 and have resulted in development and initiation of a robust EJ engagement initiative in the Fall of 2021 as summarized below.

MDOT SHA initiated an additional engagement initiative in Fall 2021 with EJ populations. This engagement effort provided more opportunities for meaningful engagement with underserved communities directly or indirectly affected by the proposed action. The intended result of this engagement was to elicit feedback on community concerns and identify strategies that could minimize impacts and community enhancements that could be implemented as part of the project. In consideration of the ongoing COVID-19 pandemic, the engagement effort focused on receiving input through development of an online survey. MDOT SHA was able to actively engage in person with over 500 people to discuss and answer questions about the project, promote the survey and receive input on community concerns and recommendations for addressing those concerns through a series of community "pop-up" events. These events were held at grocery stores and shopping centers to spread awareness of the survey, to distribute postcards with links to the survey, and to invite on-site survey participation via iPads. Spanish, Korean, Chinese, Amharic, or French language translators were available at each event depending on the community. Additionally, MDOT SHA developed and advertised this survey through a variety of means, including:

- Using provided and developed outreach lists to identify and coordinate communications with community contacts for the dissemination of survey information;
- Contacting regional and local stakeholder advisory groups to seek additional information on groups and outreach methods;
- Sending email blasts to 230 community groups, associations, civic groups, and advocacy groups, asking them to share the link to the survey with their community members;
- Distributing postcards containing the QR code with links to the survey in each of the six languages;
- Distributing yard signs, posters, and/or postcards to churches, low-income multi-family housing, ethnic grocery stores and markets, and health clinics serving EJ communities, inviting people to participate in the survey; and
- Targeted outreach to places of worship.

Refer to **FEIS, Chapter 5, Section 5.21** and **Appendix F** for additional details on outreach and engagement.

Environmental Justice Analysis

MDOT SHA's initial analysis of potential EJ impacts, focused on the entire study area, reflecting a broad geographic area surrounding the 48-mile study limits for the Build Alternatives assessed in the DEIS. MDOT SHA followed accepted practice as reflected in CEQ, USDOT and FHWA guidance to identify minority race and ethnicity populations, as well as low-income populations (EJ populations), in and around the study corridors. Refer to **DEIS, Chapter 4, Section 4.21** and **DEIS, Appendix E**. Basic demographic data was supplemented with a review of information concerning the presence of low-income subsidized housing, the distribution of Food Stamps (SNAP benefits), the proportion of students receiving free and reduced-priced lunch programs, among other measures.

Once the relevant EJ populations were identified, MDOT SHA conducted a complete review of all relevant demographic data in order to determine existing environmental and relevant community conditions of the identified EJ populations. Refer to **DEIS, Chapter 4, Section 4.21.3**. Each Build Alternative in the DEIS was then assessed for potential beneficial or adverse effects, with a particular focus on property impacts, including potential displacements and impacts to community facilities in EJ populations. Pursuant to FHWA Order 6640.23A, additional consideration was given to a broad range of environmental and natural resources issues, ranging from air and water quality, noise impacts, hazardous materials, visual intrusions, as well as socio-economic factors such as employment, mobility access, and overall quality of life. Refer to **DEIS Section 4.21.5** and **DEIS Appendix E, Section 4.5.**

The SDEIS focused on the Preferred Alternative for Phase 1 South limits, which substantially reduced the number and location of potentially impacted EJ populations analyzed in the DEIS. Refer **SDEIS, Chapter 4, Figure 4-3**. In addition, based on comments received on the DEIS from Cooperating Agencies, MDOT SHA further enhanced its EJ analysis for the Preferred Alternative by using analytical tools available on-line through the USEPA, EJSCREEN, and through the state of Maryland, EJSCREEN. Refer to **SDEIS, Appendix K**. In general, these tools assist agencies in the analysis of potential EJ impacts by identifying primary risk factors and indicators of exposure to known pollutants, hazardous substances, and proximity to health hazards that historically have had the tendency to disproportionately impact EJ populations. Application of these tools confirmed that methodology and identification of potential EJ populations was consistent with similar assessments completed by outside expert institutions.

The FEIS summarizes the Final EJ Analysis which concludes that no disproportionately high and adverse effects on minority or low-income populations based on the Preferred Alternative would occur and reflects the results of the final noise, air, traffic and other technical analyses. Refer to **FEIS, Chapter 5, Section 5.21**. With the decision to take no action or to limit the range of the Preferred Alternative, many of the study areas' EJ populations have been avoided.

Comments on Specific Impacts to EJ Populations

Many comments addressing potential EJ impacts cited public health concerns from air quality impacts.

MDOT SHA and FHWA recognize that EJ populations who live in areas with high EPA and MD EJSCREEN EJ Index scores (**FEIS Chapter 5, Section 21 and Appendix F, Section 5.4.4A**) may experience air quality

impacts from construction activities and highway operations more acutely than populations with lower EJ Index scores because those populations have higher sensitivity and exposure to pollutants. MDOT SHA has committed to implementing emission control measures aimed at minimizing impacts to air quality throughout construction. These include implementing a diesel emissions program to minimize air pollution, including Mobile Source Air Toxics (MSATs), implementing a greenhouse gas (GHG) reduction program, instituting an anti-idling policy to avoid unnecessary idling of construction equipment to reduce engine emissions and provide benefit to those that live and work in or adjacent to the anticipated construction area, and implementing a truck staging area plan for all construction vehicles waiting to load or unload material to locations where emissions will have the least impact on sensitive areas and the public. Additionally, measures to reduce fugitive dust during construction will be implemented. Refer to **FEIS, Chapter 5, Section 5.8 and Section 5.23**.

Many comments raising concern about potential EJ impacts also raised concern related to economic and access issues focused on the introduction of tolled managed lanes and the affordability of those proposed new facilities for all highway users. As described in the DEIS, the impacts of congestion pricing on EJ populations vary widely by context and type of project (i.e., full facility tolling or partial facility tolling). Refer to **DEIS, Section 4.21.5.k**. For all Build Alternatives described in the DEIS including the Preferred Alternative, new travel choices would become available for all highway users through the addition of tolled roadway capacity while maintaining the existing, free general purpose lanes on I-495 and I-270. This includes providing opportunities for new or expanded bus service on the managed lanes, free of charge, incentivizing car/vanpools where three or more users can travel on the managed lanes toll free, and by providing additional pedestrian/bicycle and transit improvements to enhance mobility and connectivity throughout Phase 1 South as part of the Preferred Alternative. Refer to the Tolling response, **Section 9.3.6** of this chapter.

Moreover, the traffic analysis disclosed in the DEIS and SDEIS and at community meetings and public workshops indicated that travel times would improve, and congestion would decrease along general purpose lanes under each of the Build Alternatives and the Preferred Alternative. This is because dynamic pricing on the tolled managed lanes enables those facilities to maintain a 45-MPH speed at all times, thereby also reducing congestion in the general purpose lanes. This results in benefits for all users of the interstate facilities analyzed in the study limits, whether they pay a toll or not.

While travel speed and trip reliability benefits offered by the managed lanes could be a less feasible economic choice for EJ populations, studies[8] based on actual user data show users of all incomes benefit from reduced travel times, including managed lane users and those who continue to use free general purpose lanes. In short, managed lane usage is not closely correlated to income. Nationwide research[9] shows a majority of travelers choose to use managed lanes occasionally for critical or important trips, such as reaching an appointment or a school event. Relevant recent experience with similar facilities in Virginia on I-495 and I-95 further supports this conclusion. As reported in The Washington Post in 2018: "…most

[8] https://www.wsdot.wa.gov/publications/fulltext/design/ConsultantSrvs/I-405ExpressTollLanes.pdf
[9] Empirical Study of the Variation of Value of Travel Time and Reliability, https://trid.trb.org/view/1437986 And Investigating the Value of Time and Value of Reliability for Managed Lanes, https://fdotwww.blob.core.windows.net/sitefinity/docs/default-source/research/reports/fdot-bdv29-977-12-rpt.pdf?sfvrsn=f4405e25_2

495 and 95 express lane users are not affluent…". According to another Post report, the average toll rates for Virginia's managed lanes on I-495 and I-95 are $5.40 and $8.45 per trip, respectively. Experience in Virginia on I-495 shows that 82 percent of customers spend less than $20 a month and 85 percent of trips were less than $12. On the Virginia I-95 Express Lanes, 74 percent of customers spend less than $20 a month.

Mobility and access for EJ populations are also increased by the Preferred Alternative as a result of new and/or improved bicycle and pedestrian access and toll-free travel for transit vehicles and car/vanpools using the managed lanes. With respect to bus transit usage, it is anticipated that increasing the availability of higher speed and more reliable options connecting major transit locations and economic centers will have a positive impact on transit usage in the study area by encouraging new transit service or modifying routes. Similarly, because HOVs with three or more passengers will also travel toll-free on the new managed lanes, the use and availability of car and vanpools should be enhanced. These affordable transportation options can particularly benefit potential users who may not have reasonable access to personal vehicles.

Overall, due to the improvements on existing interstate systems associated with the Preferred Alternative, plus the scattered distribution of EJ populations among non-EJ populations along the Phase 1 South limits, impacts would occur proportionately throughout the study limits. Quantifiable impacts, including impacts to property, community facilities and services, natural resources, noise, and hazardous waste, would be borne primarily by non-EJ populations. Impacts to demographics, traffic, air quality and its effect on public health, safety, visual and aesthetic resources, economy and employment, access and mobility, community cohesion/isolation and quality of life, and impacts resulting from construction would occur consistently along the Phase 1 South limits and more frequently in non-EJ populations based on demographics and population distribution. The types of impacts caused by the Preferred Alternative would not differ between EJ populations and non-EJ populations. The Preferred Alternative includes construction of project elements that are distributed throughout the Phase 1 South limits such as highway widening, additional managed lanes access, and construction of noise barriers, among others. As such, the types of impacts caused by the Preferred Alternative would not be greater in magnitude in EJ populations versus non-EJ populations.

Given the reasoning documented in detail in the EJ Analysis (**FEIS, Appendix F** and **FEIS, Chapter 5, Section 21**) and summarized above and in accordance with Executive Order 12898, USDOT Order 5610.2(c), FHWA Order 6640.23A, and an FHWA Guidance on EJ and NEPA (2011), FHWA and MDOT SHA have determined that a disproportionately high and adverse impact would not occur to the EJ Analysis Area populations under the Preferred Alternative.

However, to be responsive to community concerns raised during the outreach and engagement efforts, which identified priorities for improved sidewalks and bicycle facilities, better lighting, and traffic calming measures, MDOT SHA commits to working with the City of Rockville, the City of Gaithersburg, and Montgomery County to:

- Identify locations where safer pedestrian crossings on major state roadways are needed.

- Identify locations where additional pedestrian improvements including adding or upgrading sidewalk, restriping for bicycle lanes, adding or upgrading Americans with Disabilities Act (ADA)-compliant ramps are needed.
- Identify locations along state roads with existing pedestrian facilities where more or better lighting is needed.

In addition, as part of the P3 Agreement, the Developer and/or MDOT SHA has committed to the following transit-related items:

- As part of its proposal, the Developer has proposed an estimated $300 million for transit services in Montgomery County over the operating term of Phase 1 South.
- Upon financial close of the Section P3 Agreement for Phase 1 South, MDOT is committed to fund not less than $60 million from the Development Rights Fee provided by the Developer for the design and permitting of high priority transit investments in Montgomery County and MDOT is committed to deliver the Metropolitan Grove Operations and Maintenance Facility including the necessary bus fleet.
- Working with Montgomery, Frederick and Prince George's counties, a subsidy to cover the cost of transit fares for eligible low-income riders will be part of the Developer's Transit Funding Commitment.
- The Developer, as part of its commitment to support Vision Zero[10], will define a neighborhood walk and cycle connectivity zone to enhance multi-model connectivity.
- The Developer will facilitate the development of a facility improvement program for the installation or replacement of sidewalks, crossings, or signal modifications and formalizing trail development that has pedestrian demand, then rank projects according to safety significance (considering predictive safety analyses completed by M-NCPPC), readiness, and landowner consensus, as part of its commitment to support Vision Zero.

Also, to support community, environmental, and sustainability goals, the Developer will generate a Sustainability Plan for the project and will make good faith efforts to achieve, at minimum, a Gold Award rating as recognized by the Envision™ Sustainable Infrastructure Rating System of the Institute for Sustainable Infrastructure and target a Platinum Award in collaboration with the Section Developer. The Sustainability Plan will include actions related to the quality of life surrounding the infrastructure asset, stakeholder and community engagement, natural resource management, ecosystems and biodiversity health, climate resilience and carbon emissions.

Refer to **DEIS, Chapter 4, Section 4.21.5, SDEIS Chapter 4, Section 4.21.4,** and **FEIS Chapter 5, 5.21.4** for a summary of the Draft and Final EJ Analysis and **DEIS, Appendix E** and **FEIS, Appendix F** for the technical reports.

E. Water Resources

Numerous comments raised concerns over potential impacts to water quality in the study area, with a particular focus on how the DEIS Build Alternatives and Preferred Alternative would account for SWM to offset new impervious surfaces related to the new managed lanes. Comments about water quality also

[10] Vision Zero is an initiative to eliminate all traffic fatalities and severe injuries. https://www.montgomerycountymd.gov/visionzero/index.html

expressed concern regarding impacts to protected wetlands subject to permitting under Section 404 of the Clean Water Act, Maryland Water Quality Certification, and potential impacts to federally designated floodplains in the study area. All these water resources concerns are subject to extensive federal and state regulation and permitting requirements. MDOT SHA has engaged in extensive coordination with all Cooperating Agencies with jurisdiction over project permitting related to water resources and water quality, including the U.S. Army Corps of Engineers (USACE) and the Maryland Department of the Environment (MDE). Those efforts are ongoing and will continue through project final design. In addition to information provided to the public and interested stakeholders in the context of the NEPA review, those agencies also conducted extensive public outreach in the context of permit application review.

General Impacts Concerns

Impacts to surface waters, water quality, and watershed characteristics will be unavoidable under the Preferred Alternative due to direct and indirect impacts to streams and increases in impervious surface in their watersheds. These impacts may include soil erosion, removal of trees, and stormwater discharges. Refer to **FEIS, Appendix M**. Throughout the Study, MDOT SHA conducted comprehensive efforts in consultation with regulatory agencies to avoid and minimize such impacts. These efforts reflected a wide variety of planning and engineering modifications to the proposed action, including alignment shifts to avoid water resources, alteration of roadside ditch design, addition of retaining walls to minimize the roadway footprint, revision of ramp design, revision of construction access areas, relocation of managed lanes access to avoid water resources, shifting the location of noise barriers, and revision of preliminary SWM locations to avoid streams. A separate ALB Strike Team was created to investigate alternative bridge designs and construction techniques that could be employed to reduce, minimize, and avoid impacts to water resources in and around the ALB, including the Potomac River.

Wetlands and Waterways

Extensive mitigation measures would be undertaken for impacts to wetlands and surface waters. Any unavoidable impacts to wetlands and surface waters would be mitigated as required under state and federal wetlands and waterways permits. Agency coordination to minimize impacts to state-designated Scenic Rivers will continue in final design.

The project requires a Clean Water Act Section 401 Water Quality Certification from Maryland and Virginia indicating that anticipated discharges from the Study will comply with state water quality standards. MDOT SHA has coordinated closely with MDE, the Virginia Department of Environmental Quality (VDEQ), and the USACE to ensure that all state water quality standards are met for the Study. Permits will be sought from the USACE, MDE, and VDEQ for unavoidable impacts to wetlands and waterways concurrent with publication of the FEIS. Maryland and Virginia Water Quality Certifications will be requested at the same time. Minimization efforts for potential water quality impacts that could result from road crossings may include the proper maintenance of flood-prone flows through proposed structures using flood relief culverts to avoid increased scour and sedimentation. Most of the stream systems within the corridor study boundary currently have floodplain access; this should be retained as much as possible to preserve benefits such as velocity dissipation, storage, and sedimentation/stabilization. Other efforts would consider retaining or adding riparian buffers, as well as maintaining or improving aquatic life passage.

Stormwater Management (SWM)

Comments received assumed that the need for SWM was not addressed during the Study or that the SWM analysis was too preliminary and not adequate to address the future needs.

MDOT SHA will fully meet all requirements to address SWM as regulated under Maryland's SWM Act of 2007. Maryland SWM requirements aim to maintain post-development runoff as near as possible to pre-development runoff characteristics. The Preferred Alternative will require both Erosion and Sediment Control and SWM permits and will have to meet a high standard of providing protection to receiving waters both during and after construction. During construction Best Management Practices (BMPs) will be implemented, such as, super silt fence, clear water diversion and sediment traps. In 2012, MDE revised erosion and sediment control regulations in adherence with the 2011 Maryland Standards and Specifications for Soil Erosion and Sediment Control (MDE, 2014). These revisions include the establishment of a grading unit criteria, along with stricter stabilization requirements to adequately protect water quality.

Consideration of providing effective SWM for all Build Alternatives, including the Preferred Alternative, has been considered throughout the planning process. A preliminary SWM analysis was described in the DEIS, SDEIS, and now in this FEIS. Refer to **DEIS, Section 2.2.7, SDEIS, Section 2.3.2,** and **FEIS, Section 3.1.6**. SWM for this project would be developed in compliance with all applicable MDE regulations and guidance and designed in accordance with MDE's 2000 Maryland Stormwater Design Manual (MDE, 2009) and MDE's SWM Act of 2007. Environmental mapping displays the impervious area associated with the Preferred Alternative and shows the proposed large SWM facilities along the alignment. Refer to **FEIS, Appendix E.** Through continued coordination with federal and state agencies, including M-NCPPC, USACE, and MDE, MDOT SHA has continued to refine the location of proposed SWM facility locations.

The project planning process helped identify right-of-way needs for the most effective SWM solutions. That planning reflected avoidance of additional natural resource impacts from SWM to the maximum extent practicable. In general, on-site SWM locations were maximized while also minimizing impacts to natural resources, private property, and properties subject to other land use protections, such as Section 4(f) publicly owned parkland. On-site SWM for the FEIS was evaluated based on a more detailed volume based approach to fit within the Preferred Alternative LOD developed during the SDEIS and refined during the FEIS. Refer to **FEIS, Chapter 3, Section 3.1.6**. Provided SWM facilities include wet ponds, extended detention ponds, underground quantity facilities, submerged gravel wetlands, grass swales, bio-swales, micro-bioretentions, bioretentions, underground sand filter, etc. Based on the SWM Concept developed for the FEIS, 11 out of 167 Point of Investigations[11] (POI) would require variances for water quantity increases and 3 out of 167 POIs would qualify for a waiver due to direct discharge to the Potomac River.

With respect to water quality requirements, the Study evaluated potential water quality loss due to impacts to existing SWM facilities. In addition to replacing water quality loss due to impacts to existing SWM facilities, the project intends to meet water quality standards to treat all new impervious area and a minimum of 50 percent of reconstructed existing impervious area through onsite measures, wherever practicable; where not practicable, these requirements would be met offsite in accordance with MDE regulations. The SWM analysis completed for the FEIS indicates that over 95 percent of the water quality

[11] Point of Investigation means location where concentrated runoff from a drainage area flows from the project site.

requirements can be met onsite. However, due to the existing site constraints and the amount of impervious area requiring treatment for the Preferred Alternative, the remaining five percent of water quality could not be met onsite for the Preferred Alternative. Consequently, compensatory SWM treatment may be required to offset the environmental site design deficit. Other measures may also be considered in particularly sensitive watersheds after further coordination with resource agencies, such as redundant erosion and sediment control measures and/or providing on-site environmental monitors during construction to provide extra assurance that these measures are fully implemented and functioning as designed.

The preliminary Compensatory (offsite) SWM Mitigation Plan provides up to 27 acres for Phase 1 South, which exceeds the compensatory mitigation requirements, which are estimated to be 2.4 acres based on the FEIS SWM analysis. Based on that overall total, the Developer will be able to determine site feasibility and final design. Refer to **FEIS, Appendix D**. Detailed SWM design, to be performed during final design, and/or use of innovative technologies may reduce the compensatory SWM requirements. In addition, sensitive waters, such as, Tier I watersheds and Use III and IV watersheds have additional requirements and restrictions on the type of SWM that can be used to provide extra protection. Final design of both the onsite and offsite SWM sites will be performed at later design stage.

F. Air Quality

Commenters stated that no air quality analysis was completed or that it was inadequate and not completed to standards.

The Clean Air Act and Amendments (CAA) is the overarching statute regulating air quality in the US. The CAA requires the USEPA to set standards for air pollutants, approve state plans, and enforce deadlines for reducing air pollution, among many other responsibilities. USEPA's transportation conformity rule (40 CFR Part 93) provides the criteria and procedures for implementing the transportation conformity provisions of the CAA. NEPA guidelines issued by the USDOT outline federal requirements for air quality analyses for transportation projects. Where applicable, other requirements derive from the federal transportation conformity rule (40 CFR Parts 50 and 93). FHWA's 1987 Technical Advisory 6640.8A, *Guidance for Preparing and Processing Environmental and Section 4(f) Documents*, provides general guidance for project-level air quality analyses.[12] That guidance focuses on carbon monoxide (CO). FHWA provides separate guidance on MSATs.[13] The air quality analysis for the Study was performed in consultation with FHWA using approved models, methodologies, and guidance to analyze required pollutants for the Build Alternatives in the DEIS and the Preferred Alternative in the FEIS. Refer to **DEIS, Appendix I** and **FEIS, Appendix K**.

As required by the CAA, the USEPA sets the National Ambient Air Quality Standards (NAAQS) for airborne pollutants that have adverse impacts on human health and the environment, referred to as criteria pollutants. The criteria pollutants are CO, sulfur dioxide (SO_2), ozone (O_3), particulate matter ($PM_{2.5}$ and PM_{10}), nitrogen dioxide (NO_2), and lead (Pb). In addition to the criteria pollutants for which there are NAAQS, EPA also regulates MSATs. The nine priority MSATs are: benzene, 1,3-butadiene, formaldehyde, acrolein, acetaldehyde, diesel particulate matter, ethylbenzene, naphthalene, and polycyclic organic

[12] https://www.environment.fhwa.dot.gov/projdev/impTA6640.asp

[13] FHWA, "INFORMATION: Updated Interim Guidance on Mobile Source Air Toxic Analysis in NEPA Documents", October 18, 2016. Refer to: http://www.fhwa.dot.gov/environment/air_quality/air_toxics/

matter. GHGs are another pollutant monitored by EPA. The primary GHGs in the Earth's atmosphere are Carbon Dioxide (CO_2), Methane (CH_4), Nitrous Oxide (N_2O), and Fluorinated Gases.

The Study is located in an attainment area, as defined by USEPA, for CO, and particulate matter (PM_{10} and $PM_{2.5}$) therefore, transportation conformity requirements pertaining to these criteria pollutants do not apply to this project and no further emissions analysis were evaluated. A CO analysis of emissions from affected intersections and interchanges was conducted for informational purposes since CO is a proxy for transportation emissions, as discussed in the 1987 Technical Advisory. The results of that analysis demonstrate that the worst-case interchanges and intersections for each Build Alternative in the DEIS and the No Build Alternative, using very conservative assumptions, would not cause or contribute to a violation of the CO NAAQS within the study area. An updated traffic analysis to determine the worst-case intersections and interchanges (using maximum peak hour volume and maximum peak hour delay) associated with the Preferred Alternative throughout the corridors was performed. While some interchanges and intersections identified as worst case in the updated traffic analysis differed from those included in the DEIS, the results of the analysis showed that overall the maximum peak hour volumes and maximum peak hour delays were less than the top three intersections and interchanges used in the DEIS analysis. For this reason, the DEIS analysis can still be assumed to have projected worst-case emissions and that the project would not cause or contribute to a violation of the CO NAAQS.

The Preferred Alternative is located in Montgomery County, Maryland and a small area in Fairfax County, Virginia. The USEPA Green Book[14] lists these counties as attainment for all NAAQS with the exception of the 2015 8-hour O_3 standard,[15] for which the counties are nonattainment. The USEPA recently redesignated the area to maintenance/attainment for the 2008 8-hour O_3 standard.[16] The 2015 O_3 NAAQS (0.070 parts per million [ppm]) are more stringent than the 2008 NAAQS (0.075ppm). Maryland, Virginia and the District of Columbia submitted maintenance plans to USEPA that demonstrated maintenance of the 2008 O_3 NAAQS through 2030 and therefore, their request to be redesignated to maintenance/attainment of those NAAQS was granted by USEPA in April 2019. The measured ambient air concentrations closest to the study area were all well below the corresponding NAAQS, except for the exceedance of the 2015 8-hour O_3 standard recorded at all the monitor locations. Ozone is analyzed at a regional level and the Study is currently included in the NCRTPB Fiscal Year 2019 – 2024 Transportation Improvement Program (TIP) [TIP ID 6432 and Agency ID AW0731 (planning activities and preliminary engineering)] and the NCRTPB Visualize 2045 Long Range Plan (CEID 1182, CEID 3281, and Appendix B page 56). The Study is also included in the Air Quality Conformity Analysis Determination that accompanies the *Visualize 2045* Plan. That analysis showed that the transportation program, which includes the Study, would not cause or contribute to a violation of the O_3 NAAQS.

The air quality analysis also assessed MSATs. Quantitative MSAT analysis was conducted as the expected VMT is greater than 150,000 AADT in the design year. Results of the air quality analysis in the DEIS showed MSAT emissions are expected to remain the same or slightly decrease for all Build Alternatives when

[14] https://www.epa.gov/green-book

[15] These counties were redesignated to attainment of the 2008 ozone NAAQS, effective May 15, 2019 (See: https://www.federalregister.gov/documents/2019/04/15/2019-06128/air-plan-approval-district-of-columbia-maryland-and-virginia-maryland-and-virginia-redesignation).

[16] https://www.federalregister.gov/documents/2019/04/15/2019-06128/air-plan-approval-district-of-columbia-maryland-and-virginia-maryland-and-virginia-redesignation

compared to the No Build Alternative for 2040. Refer to **DEIS, Appendix I**. In addition, all MSAT pollutant emissions are expected to significantly decline in the Opening (2025) and Design (2040) years when compared to base conditions (2016). These reductions occurred despite projected increase in VMT from 2016 to the 2025 and 2040 build scenarios in the DEIS. The MSAT analysis was updated for the Preferred Alternative as part of the FEIS. All MSAT pollutant emissions are expected to increase slightly for the Preferred Alternative when compared to the No Build condition in 2025 and 2045. However, all MSAT pollutant emissions are expected to significantly decline in the Opening (average 72.9% decrease) and Design (average 89.29%) years when compared to existing conditions.

G. Climate Change and Greenhouse Gas (GHG)

Comments received expressed concern that the project would have a significant impact on GHG emissions and climate change and that the project would impede Maryland's ability to reach its goal of a 40% reduction in emissions by 2030. To date, no national standards or NAAQS for ambient GHG emissions have been established by the USEPA under the CAA and there is no approved regulatory requirement that has been established to analyze these emissions at a project level for transportation projects. Consistent with the 2016 CEQ Final GHG NEPA guidance,[17] a quantitative GHG assessment was conducted. Refer to **FEIS, Chapter 5, Section 5.8**.

GHG emissions are different from criteria air pollutants since their effects are in the global atmosphere rather than localized. GHG emissions from vehicles using roadways are a function of distance traveled (expressed as VMT), vehicle speed, and road grade.

GHG emissions for the Existing (2016), Opening (2025) and Design (2045) year for the Preferred Alternative and No Build Alternative were estimated consistent with the MSAT methodology as discussed below and include carbon dioxide equivalent (CO_2e) and its constituent pollutants as included in the latest MOVES version 3.0.1, or MOVES3. The latest version of MOVES specific to GHG includes the following regulatory updates:

- GHG Emissions and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles—Phase 2; and
- Safer Affordable Fuel Efficient (SAFE) Vehicles Rule

Since there is no approved methodology for conducting a project-level quantitative GHG emissions analysis, there are numerous parameters that could be applied to conduct such a review. Consistent with FHWA guidance on developing an affected network to analyze project-related pollutants, such as MSATs, MDOT SHA analyzed GHG emissions using the same affected network as the MSAT analysis. This definition of the affected network, however, is likely extremely conservative, as GHG emissions are most commonly considered on a regional or even broader level.

[17] https://www.federalregister.gov/documents/2016/08/05/2016-18620/final-guidance-for-federal-departments-and-agencies-on-consideration-of-greenhouse-gas-emissions-and

The analysis shows GHG emissions under the Preferred Alternative are expected to decline in the Opening (2025) and Design (2045) years for all GHG pollutants when compared to existing conditions. Specifically, for CO2e, there is projected to be a 94,664 tons per year decrease (13% reduction) in the Opening year and a 67,272 tons per year decrease (9% reduction) in the Design year. These reductions occur despite projected increase in VMT on the affected network between the 2016 and 2025 and 2045 Build scenarios. Refer to **FEIS, Appendix K, Section 3.4.1** for additional detail on the GHG results.

Under the No Build condition, VMT on the affected network would gradually increase for the years between 2016 and 2045 as employment and population in the area increases. Under the Preferred Alternative, VMT would experience an increase due to the same factors affecting the No Build condition but would also increase because the operational improvements on I-495 and I-270 as a result of the Preferred Alternative would pull traffic off of local roadways and onto the interstates. Since the affected network is comprised primarily of the interstates and small sections of adjoining roadways, the VMT under the Preferred Alternative experiences a larger increase on the affected network when compared to the regional traffic model used for the overall project. This is because while the increase in VMT on the interstates is accounted for, the model does not account for the decrease in VMT on local roadways. Therefore, the approach to analyze GHG emissions applying the substantially narrower affected network used for the MSAT analysis may not accurately reflect regional GHG emissions resulting from the Preferred Alternative. In addition to an analysis of operational GHG emissions, an analysis of construction emissions associated with the Preferred Alternative using the FHWA Infrastructure Carbon Estimator (ICE) is included in the FEIS. Refer to **FEIS, Chapter 5, Section 5.23.3** and **FEIS, Appendix K.**

MDOT acknowledges concerns about climate change and Maryland is committed to reducing GHG emissions and to prepare our State for the impacts of climate change. The Maryland Commission on Climate Change (MCCC) and its Mitigation Working Group (MWG) have demonstrated that commitment by working collaboratively with experts and stakeholders across State and local agencies, environmental, non-profit and academic institutions. The resulting body of work quantifies baseline GHG emissions by sector to understand the impacts that specific plans, policies, and programs will have on future emissions economy-wide. Statewide analyses indicate that the Study will not impede Maryland's ability to meet its GHG emission reduction goals. In fact, the Greenhouse Gas Reduction Act Plan documents Maryland's existing and future emissions reductions under several scenarios, all of which include this project. The document illustrates that Maryland will not only meet the 40 percent by 2030 goal, but that we are dedicated to working together to exceed that goal and to strive for a 50 percent reduction by 2030.

MDOT continues to be an active partner in the MCCC and Maryland's GHG reduction efforts. MDOT is leading the way on transportation sector scenario and emissions analyses and has worked with stakeholders, communities, and partners on the MWG to better understand the impacts of the changes within the transportation sector, ranging from technology improvements, such as the deployment of automated, connected, and electric vehicles to the importance of improving mobility and expanding telework.

As MDOT is committed to reducing GHG emissions, measures aimed at reducing emission both in the short-term, during construction, and the long-term, during operations, have been committed to or are incorporated into the Preferred Alternative. Refer to **FEIS, Chapter 5, Section 5.8.4 and Chapter 7, Section 7.2**.

H. Noise

Comments received noted concerns about the adequacy of the noise analysis approach and questioned the application of the noise policy guidelines. Other comments raised concerns over the anticipated increase in noise levels and whether abatement was appropriately considered.

MDOT SHA's noise impacts analysis was conducted in compliance with MDOT's *Highway Noise Abatement Planning and Engineering Guidelines* (2020), which are in turn, based on FHWA regulations at 23 CFR Part 772, *Procedures for Abatement of Highway Traffic Noise and Construction Noise*. As described in the DEIS, updated in the SDEIS, and finalized in the FEIS, the noise analysis presents the predicted loudest hour build traffic levels in order to determine if those noise levels create a traffic noise impact, and if so, to determine whether abatement is feasible and reasonable for the Preferred Alternative. Refer to **DEIS and SDEIS Chapters 4.9; DEIS Appendix J, SDEIS Appendix E,** and **FEIS, Appendix L**.

Noise modeling was performed using FHWA's Traffic Noise Model (TNM), v.2.5. Because the study area covers Maryland and Virginia, noise analysis guidance for each of those states was followed, as appropriate for portions of the study area in those jurisdictions. The validation process for application of the federal TNM confirms the model's ability to reproduce measures noise levels. MDOT SHA properly validated its modeling effort to determine its accuracy by comparing monitored and existing noise levels in the study area. Refer to **SDEIS, Chapter 4, Section 4.9.1**.

To determine impacts, a set of noise-sensitive areas (NSA) are identified based on the type of activities or land uses present at those NSAs. The majority of NSAs relevant to the DEIS Build Alternatives and the Preferred Alternative fall within either Activity Category B (exclusively residences) or Activity Category C (non-residential outdoor recreational uses or schools or places of worship). The federal regulations and state guidance referenced above requires that noise abatement (mitigation) be investigated for all NSAs when build traffic noise levels approach or exceed standards for that land use category OR where there are substantial increases (10 decibels) from the existing to build conditions. For this project, no NSAs will experience such a substantial increase as a result of the Preferred Alternative.

The results of the updated analysis on the Preferred Alternative in the FEIS showed 59 NSAs in the study area (representing a reduction of 69 NSAs from the DEIS and a reduction from 64 in the SDEIS). MDOT SHA then analyzed whether each NSA would experience noise impacts and if each location already had an existing noise barrier as documented in the FEIS. As detailed in the **FEIS, Chapter 5, Section 5.9** and **FEIS, Appendix L**, 48 of the 59 NSAs are predicted to result in noise impacts; of those 48, eight (8) do not meet established criteria for noise abatement.

Having established the modeling results, the federal regulations next require the agency to assess whether abatement is "feasible and reasonable" based on a series of practical engineering and performance measures. For the Study, MDOT SHA analyzed several noise barrier scenarios, including keeping existing barriers in place, extending existing barriers, replacement of existing barriers that could be displaced by construction activities and installation of new barriers in locations without existing barriers. Based on preliminary design assumptions, MDOT SHA made recommendations for the installation or replacement of noise barriers. Those recommendations will be finalized based on detailed engineering performed during final design. That process will solicit the views and opinions of impacted property owners and residents.

MDOT SHA's analysis of noise impacts was done in compliance with existing federal regulations and applicable state guidance. Final determinations on the size and location of noise abatement will also be made in accordance with those standards and the prescribed feasibility and reasonableness criteria contained therein.

I. Construction Impacts

The proposed action will be built in a heavily developed area constrained by existing residential and commercial development and by environmental resources. Some commenters were concerned that the LOD does not account for potential effects of construction. The impacts assessment accounts for the potential land needed for construction, including areas for staging, materials storage, and access needs at specific locations. These areas needed for construction accounted for in the LOD were initially identified in the DEIS (**DEIS, Appendix D**) and further reduced as shown in both the SDEIS and FEIS. (Refer to **SDEIS, Appendix D** and **FEIS, Appendix E**). The SDEIS and FEIS present quantified property impacts of the Preferred Alternative and are categorized by permanent (or long-term) effects and temporary (or short-term) effects. Refer to **SDEIS, Chapter 4, Section 4.5** and **FEIS, Chapter 5, Section 5.5**.

It is anticipated that construction will last approximately five to six years. Details related to precisely when and where construction related activities will occur will be determined in final design, however, the project will likely require night work to occur when activities could not be completed safely during the day due to heavy traffic congestion. Advanced notice of construction related activities would be provided and all reasonable efforts to minimize impacts to residential communities would be undertaken. Impacts associated with construction that will be further evaluated for the Selected Alternative in final design include traffic congestion associated with maintenance of traffic during construction, utility disruptions, construction vibration, erosion and sediment and control, and construction related noise.

The management of construction impacts is addressed in an agreement between MDOT SHA and the Developer. Pursuant to that agreement, coordination with the neighboring communities will continue through final design and construction. The agreement includes requirements to minimize impacts to surrounding communities and the traveling public, while completing construction as soon as possible. Work hours and duration of construction will be identified to minimize impacts to traffic in an effort to reduce construction related congestion and in consideration of noise and vibration impacts to adjacent communities. Construction methods and materials will comply with contract specifications state and federal regulation, and environmental permits and mitigation requirements. Careful attention will be given to assure that material placement will occur when weather conforms to industry standards and regulation. In addition to required governmental inspections, the Developer is required by contract to provide independent environmental, quality, and safety oversight of its contractor's performance. Refer to Final Phase 1 P3 Agreement, https://oplanesmd.com/p3-information/phase-1-agreement/. Once the Developer has selected a Design-Build Contractor(s), the schedule and duration for Phase 1 South construction will be made available to the public.

Other comments regarding construction impacts focused on: noise, air pollutant emissions, and exposure to hazardous materials. Regarding construction noise, the DEIS and SDEIS acknowledge that short-term highway construction can produce noise impacts in areas around the construction site. This type of project will likely employ the following equipment, which could be a source of construction noise: bulldozers and earthmovers; front-end loaders; dumps and other diesel trucks; and compressors. Generally, sensitive

land uses near construction zones may experience noise levels between 78 dB(A) and 83 dB(A). Refer to **SDEIS, Section 4.23** and **FEIS, Section 5.23**. Maintenance and adjustments to equipment, temporary noise barriers, construction of permanent noise barriers, where possible, variation of construction activity areas, public involvement, and financial incentives to contractors are all mitigation approaches that can decrease temporary noise impacts. Final mitigation as agreed upon with these agencies will be documented in the FEIS and ROD. Wherever possible, the Developer will be required via contract specifications to construct any proposed noise barrier prior to demolishing the existing sound barrier in order to reduce noise and screen neighborhoods from construction activities. Where a proposed noise barrier cannot be constructed prior to demolishing an existing noise barrier, the Developer will be required via contract specifications to begin construction of the new noise barrier within 60 days of beginning the existing sound barrier demolition; the Developer would also be required via contract specifications to continue construction operations of the proposed noise barrier until it is completed. Final determination of noise barrier feasibility, reasonableness, dimensions, and locations will be made during the Final Design Noise Analysis, which is discussed further in **DEIS Appendix J, Noise Analysis Technical Report, SDEIS Appendix E, Noise Technical Report Addendum,** and **FEIS Appendix L, Final Noise Technical Report.**

Because the project's construction duration is not anticipated to exceed six years in any single location, most air emissions associated with construction are considered temporary in nature. The primary air quality concerns during construction would be a potential short-term localized increase in the concentration of fugitive dust (including airborne $PM_{2.5}$ and PM_{10}), as well as mobile source emissions, including pollutants such as CO. To manage fugitive dust emissions during construction, the contractor may use some or all of the following dust control measures, to minimize and mitigate, to the greatest extent practicable, impacts to air quality:

- Minimize land disturbance;
- Cover trucks when hauling soil, stone, and debris (MDE Law);
- Use water trucks to minimize dust;
- Use dust suppressants if environmentally acceptable;
- Stabilize or cover stockpiles;
- Construct stabilized construction entrances per construction standard specifications;
- Regularly sweep all paved areas including public roads;
- Stabilize onsite haul roads using stone; and/or
- Temporarily stabilize disturbed areas per MDE erosion and sediment standards.

Since CO emissions from motor vehicles generally increase with decreasing vehicle speed, disruption of traffic during construction (such as temporary reduction of roadway capacity and increased queue lengths) could result in short-term elevated concentrations of CO. To minimize the amount of emissions generated, efforts would be made during construction to limit traffic disruptions, especially during peak travel hours including keeping the same number of existing lanes open during construction.

Construction activities would also generate GHG emissions. Preparation of the roadway corridor (e.g., earth-moving activities) involves a considerable amount of energy consumption and resulting GHG

emissions; manufacture of the materials used in construction and fuel used by construction equipment also contribute to GHG emissions; and on-road vehicle delay during construction would also increase fuel use, resulting in GHG emissions. In addition to an analysis of operational emissions of GHG, an analysis of construction GHG emissions associated with the Preferred Alternative using the FHWA ICE is included in the FEIS. Refer to **FEIS, Chapter 5, Sections 5.8 and 5.23.3** and **FEIS, Appendix K**. FHWA's ICE analysis is a planning level analysis that uses high-level estimates of construction activity in terms of lane miles or track miles before refined estimates are available. It is appropriate to analyze decisions that are made in the long-range planning or project development processes, before details about specific facility dimensions, materials, and construction practices are known. Since the estimation of emissions is derived from engineering factors such as new lane miles added and number of bridges being constructed or reconstructed, estimated emissions for construction of each of the Build Alternatives would likely be very similar so conducting an ICE analysis on each alternative would not have provided meaningful information to differentiate between alternatives. The results of the ICE analysis for the Preferred Alternative show that the construction and maintenance of the project would produce annualized CO_2 equivalent emissions of approximately 1.1 million metric tons per year ($MTCO_2e$). Total construction and maintenance related emissions over the 30-year lifespan of the project are estimated at 34,477,856 MTCO2e. The majority of these emissions are associated with vehicles using the roadway during normal operations and delays associated with the construction of the project. Refer to **FEIS, Chapter 5, Section 5.8.4**.

Finally, land use impacts association with project construction would require the disturbance of soil and vegetation which could expose hazardous materials. Prior to acquisition of right-of-way and construction, Preliminary Site Investigations would be conducted on properties within and in the vicinity of the Preferred Alternative LOD that have a high potential for exposing contaminated materials during construction activities. Refer to **SDEIS, Chapter 4, Section 4.10**. Proposed investigation for the high concern sites would adequately characterize surficial and subsurface soils, as well as groundwater, if anticipated to be encountered. Example locations would consider locations of previous releases, former/current/abandoned storage tanks, and inferred groundwater flow, as well as proposed soil/groundwater disturbance during construction. The Developer would be required to use BMPs to minimize the release of any hazardous materials during construction.

J. Wildlife and Wildlife Habitat

Some comments focused on the analysis of the proposed action's potential effects on wildlife and aquatic resources, in general, as well as the potential impact on state or federal protected rare, threatened or endangered (RTE) aquatic and terrestrial species. MDOT SHA coordinated its analysis of these potential impacts throughout the NEPA process with the United States Fish and Wildlife Service (USFWS), the National Marine Fisheries Service (NMFS), the Maryland Department of Natural Resources (MDNR), and the Virginia Department of Conservation and Recreation (VDCR). As summarized below, while some impact to wildlife resources is anticipated, the pertinent state and federal agencies have determined that the project would have no effect on protected species. Moreover, the project will implement extensive mitigation measures during construction to further minimize impacts to these resources.

The Preferred Alternative would result in the physical removal and disturbance of vegetated areas, including forested canopy or tree canopy areas, within the LOD due to clearing and grading of land needed for construction of highway travel lanes; highway interchanges and ramps; noise barriers; and construction of required SWM, among other construction-related activities. Additional, indirect impacts

to vegetated areas could result from increased roadway runoff, sedimentation, and the introduction of non-native plant species within disturbed areas. These indirect impacts could lead to terrestrial habitat degradation within the Preferred Alternative LOD, and ultimately a decrease in plant and animal species that inhabit these areas. Refer to **DEIS and SDEIS Chapter 4, Section 4.16.3, DEIS, Appendix L, SDEIS, Appendix H, FEIS Chapter 5, Section 5.19,** and **FEIS, Appendix M** for greater detail.

This reduction in available vegetated habitat will result in unavoidable impacts to terrestrial wildlife, however, these wildlife impacts are anticipated to be minimal since the Preferred Alternative would improve an existing roadway corridor primarily populated by edge and disturbance acclimated species. Likewise, impacts to potential Forest Interior Dwelling Bird Species (FIDS) habitat would result from the widening of the existing highway, resulting in a reduction to the forest interiors required by FIDS. Because most of these impacts would not result in new edge habitat, which occurs from bisecting the FIDS habitat, similar to the conclusion regarding terrestrial effects, the overall impacts to FIDS species and habitat are also expected to be minimal.

MDOT SHA has applied avoidance and minimization efforts through design refinements resulting in a narrowing of the LOD and reduced impacts to terrestrial and forest habitat. Refer to **DEIS, Chapter 4; DEIS, Appendix B; DEIS, Appendix L; DEIS, Appendix M; SDEIS Chapters 2 and Chapters 4; FEIS Chapter 3; FEIS, Appendix M;** and **FEIS, Appendix N.** Unavoidable impacts to forest habitat from the Preferred Alternative will be regulated by MDNR. MDOT SHA must comply with the Maryland Reforestation Law which details a hierarchical process for mitigating unavoidable tree and forest impacts. MDOT SHA conducted a forest mitigation site search (revised in July 2021) to identify off-site mitigation opportunities on public lands after all opportunities to identify on-site planting locations had been exhausted. Specific mitigation for forest impacts in Forest Conservation Easement area, local parks and NPS land has been developed in close coordination with the appropriate local, state or federal agencies.

Potential impacts to aquatic biota in the study area result from direct and indirect impacts to perennial and intermittent stream channels. Refer to **SDEIS, Chapter 4, Section 4.12** and **FEIS Chapter 5, Section 5.18**. Impacts to aquatic biota could range from mortality of aquatic organisms during construction of culvert extensions and loss of natural habitat from the placement of culvert pipes and other in-stream structures to more gradual changes in stream conditions. Impacts to aquatic biota, including species of freshwater mussels, are possible from the replacement of bridges and their in-water piers.

In particular, replacement of the ALB crossing the Potomac River will require extensive in-stream work, and all required precautions will be taken to avoid and minimize impacts to the stream and its aquatic biota. MDOT SHA has agreed to conduct a mussel survey in the Potomac River surrounding the ALB prior to construction. Refer to **DEIS and SDEIS Chapter 4, Section 4.18.3**, and **FEIS Chapter 5, Section 5.18**. Construction approaches that minimize the temporal extent of in-water activities in the Potomac River surrounding the ALB will be considered to the extent practicable. Causeways and trestles proposed adjacent to the existing ALB will be designed to avoid impacting fish passage by maintaining river velocities below approximately 3 feet per second at commonly observed discharges during spawning periods for anadromous fish. Trestles or other non-fill accessways will be used in areas of deeper water (e.g., extending from the southern bank) to the extent practicable to minimize fill and associated flow restrictions. Refer to **SDEIS, Chapter 4 Section 4.18.4** and **FEIS Chapter 5, Section 5.18.4**.

Pursuant to federal requirements, MDOT SHA paid close attention to federally protected threatened and endangered species. MDOT SHA conducted bridge and acoustic surveys within study area for the threatened Northern Long-Eared Bat (NLEB) and endangered Indiana Bat in coordination with the MDNR and USFWS. Following the submittal of reports on these efforts to state and federal regulatory officials for review, these agencies concluded the consultation process under Section 7 of the Endangered Species Act. Refer to **SDEIS, Appendix H**. The USFWS has determined that the proposed action will have "no effect" on the Indiana Bat based on the absence of documented species during bridge emergence and acoustic surveys. In addition, the proposed action is covered by the USFWS January 5, 2016 Programmatic Biological Opinion on Final 4(d) Rule for the NLEB and Activities Excepted from Take Prohibitions because the study area where forest clearing will occur does not have known maternity roost trees or hibernacula. Therefore, the action has been determined "not likely to adversely affect" the NLEB.

MDOT SHA and FHWA have worked closely with USFWS and MDNR to ensure maximum protection of identified bat species. Specifically, MDOT SHA voluntarily committed to a time of year restriction for tree clearing from May 1 through July 31 of any year within a 3-mile buffer around each of the three positive NLEB detection locations within the study area to go above and beyond what is required to protect this bat species. Refer to **SDEIS, Chapter 4 Section 4.19** and **FEIS Chapter 5, Section 5.19**.

MDOT SHA considered potential impacts to Virginia state-endangered tricolored bat (*Perimyotis subflavus*) and little brown bat (*Myotis lucifugus*) in the Virginia portion of the Preferred Alternative. The acoustic survey on the Virginia side of the Potomac River identified four instances of the tricolored bat and no presence of the little brown bat. The Preferred Alternative would potentially affect the tri-colored bat in Virginia. The majority of the Preferred Alternative LOD area in Virginia is composed of suitable/somewhat suitable bat habitat, with 32.6 acres of potential tri-colored bat habitat in the Virginia portion of the Preferred Alternative. There is a high likelihood of roost trees occurring in this area and tree removal during roosting season could negatively impact the tri-colored bat population in Virginia. To protect this species, MDOT SHA has agreed to a time of year restriction for tree removal proposed by Virginia Department of Wildlife Resources (VDWR) for the entire Preferred Alternative LOD in Virginia from April 1 – October 31.

MDOT SHA has conducted evaluations of streams in the Virginia portion of the Phase 1 South portion of the corridor study boundary for the presence of wood turtle (*Glyptemys insculpta*). The wood turtle is a state-threatened species in Virginia, and is known to occur in Turkey Run, a waterbody located east of the Phase 1 South portion of the corridor study boundary. The evaluation was to include an assessment of potential upland and aquatic habitats, the results of which were reported to the VDWR. To assess the potential presence of wood turtles within the Virginia portion of the Phase 1 South portion of the corridor study boundary, qualified biologists conducted field surveys of all delineated streams in February 2021 and in mid-March. Results of the wood turtle surveys are summarized in the *Wood Turtle Habitat Assessment and Survey Report – Virginia I-495 & I-270 Managed Lanes Study*, **SDEIS Appendix H**. Portions of eight streams, including the Virginia shoreline of the Potomac River, were assessed within the Virginia Phase 1 South portion of the corridor study boundary (**Refer to Figure 2-1 in Appendix B** of the wood turtle report included in **SDEIS, Appendix H**). No wood turtles were found during the field surveys. Four of the streams were either intermittent or ephemeral and, thus, were not suitable overwintering habitat for wood turtles. Bald eagles are not expected to be negatively affected by the proposed action, because no bald eagle nests have been identified by USFWS within the study corridor boundary. Since bald eagle

populations are expanding, it is possible that additional nesting pairs may utilize areas near the highways in the future. MDOT SHA will consult with the USFWS when construction begins to confirm the presence/absence of bald eagle nests in the vicinity of the proposed action. USFWS determined that the improvements to the ALB will require removal prior to construction and replacement of the resident peregrine falcon nest box after construction in close coordination with the USFWS. USFWS expects disruption of the falcons for multiple nesting seasons due to long-term construction activities. Once construction activities are mostly complete near the former nest site, MDOT SHA recommends that the nest box be reinstalled. Refer to **DEIS and SDEIS, Chapter 4 Section 4.17.3**.

Based on extensive surveys conducted in 2019 through 2020, seven state-listed RTE plant species were found within the study corridor boundary. While complete avoidance of these RTE plant species is not possible, as most will be impacted by the construction of the ALB, impacts were minimized to the extent practicable. Mitigation for impacts to these state-listed RTE plant species has been identified through coordination with the NPS, MDNR and VDCR and includes development and implementation of a comprehensive ecological restoration plan for the impacted area. Refer to **FEIS Chapter 5, Section 5.19**.

K. Property/Community Facilities

DEIS commenters noted primarily concern regarding the number of residential and commercial displacements that would occur with the DEIS Build Alternatives and the potential impacts of property acquisitions. Commenters on the SDEIS sought further confirmation of the impacts of the Preferred Alternative and continued to raise concerns with temporary and partial property and community facility impacts.

The study corridors are adjacent to well-established communities, as well as commercial and industrial facilities largely adjacent to existing interstate highways but also other state and local transportation right-of-way. The Preferred Alternative does not result in any full acquisitions or residential or business displacements. The Preferred Alternative would require property acquisition to accommodate the proposed managed lanes, shoulders, traffic barrier, direct access at-grade auxiliary lanes or ramps, cut and fill slopes, SWM facilities, retaining walls, and noise barriers. Construction of the Preferred Alternative would also require relocation of some signage, guardrails, communications towers, and light poles.

Property acquisitions under the proposed action would largely occur to areas immediately adjacent to the existing I-495 and I-270 roadway alignments, acquiring strips of land from undeveloped areas. Throughout the NEPA process, MDOT SHA has worked diligently to reduce property needs and community impacts by attempting to stay within the land previously acquired and impacted by the existing highway. MDOT SHA performed more detailed analysis and engineering on all Build Alternatives in order to avoid or minimize residential and business displacements. For all Build Alternatives, these efforts included reducing grading areas next to the roadway, adding retaining walls, modifying interchange ramp designs, adjusting direct access locations, shifting the centerline alignment, and locating stormwater facilities underground.

Most important, MDOT SHA continued to engage with property owners, business owners, community organizations and the general public to address concerns over property displacements and impacts. As a result, the range of 25-34 full property displacements revealed in the DEIS have been completely avoided under the Preferred Alternative. In addition, no permanent impacts to the operation of existing

community facilities would occur. Although partial acquisitions will still be necessary to construct the Preferred Alternative (limited "strip takes" of parcels and undeveloped areas of trees or landscaping adjacent to I-495 and I-270), the existing sense of community cohesion of communities along the study corridors would not be impacted. Refer to **DEIS and SDEIS, Chapter 4, Sections 4.5, 4.6 and 4.9** and **FEIS, Chapter 5, Section 5.5**.

Also, the Preferred Alternative would not eliminate access or provide new access to properties, nor would it impede access between residences, community facilities, and businesses as no properties are accessed directly from I-495 or I-270. MDOT SHA will continue to make minimizing impacts a priority through design and construction and is committed to further coordination with neighboring communities and individual property owners. Based upon the overall project benefits and strong values of communities currently located near the Study, any projected decline or increase in property values related to the construction of the project but not directly impacted is speculative. Where MDOT SHA acquires property, property owners are compensated for decreases in value to the remainder of the property.

Construction would require the removal of vegetation to varying degrees from strips of land adjacent to the study corridors within the LOD for the Preferred Alternative. As a result of the vegetation removal, the wider interstates, added direct access, at-grade auxiliary lanes or ramps, retaining walls, and noise barriers would become more visible and prominent. The views from adjacent properties including residential properties, commercial enterprises, parkland/open space properties, and a number of community resources would experience a visual impact; however, impacts would generally be consistent with existing views of the study corridors as the surrounding area is adjacent to the existing interstate facilities and are visually consistent with the existing highway setting.

The Preferred Alternative also would require reconstruction of structures spanning I-495 and I-270 to lengthen or raise the elevation of these structures. Residents and employees who live, work, and utilize services immediately adjacent to the study corridors may experience changes in current quality of life due to visual and aesthetic impacts, partial property acquisition, and temporary construction activities. While the Preferred Alternative would introduce some new elements, such as direct access ramps, the expanded highway features would generally be compatible with the existing visual character or qualities along the existing interstates.

The design of all highway elements would follow aesthetic and landscaping guidelines which will be developed in consultation with local jurisdictions, private interest groups (private developers or companies), local community or business associations, as well as local, state, and federal agencies and the Developer to assure visual consistency with existing setting.

Development of the Preferred Alternative will result in beneficial impacts from projected congestion relief. The expected improved congestion and trip reliability in Phase 1 South would result in more predictable travel and increased response times for emergency services and travel times to other community facilities. The Preferred Alternative would also reduce traffic on local roads by three and a half (3.5) percent, which would lead to better access to facilities and improved emergency response times along local roadways. Refer to **FEIS, Chapter 4, Section 4.3.6**. Community residents could also experience a benefit to quality of life due to reduced congestion along the study corridors and improved trip reliability and travel choices to destination points within the region.

L. Public Health

Many comments concerning specific project impacts focused on the potential for adverse effects on public health, particularly with respect to air quality. These comments often tied potential public health effects to the analysis of EJ concerns, as data suggests that disadvantaged and/or low-income communities may experience proportionally greater adverse effects as a result of proximity to traffic-generated air pollution.

As required by the CAA, the USEPA sets the NAAQS for airborne pollutants that have adverse impacts on human health and the environment, referred to as criteria pollutants. The criteria pollutants are CO, SO_2, O_3, $PM_{2.5}$ and PM_{10}), NO_2, and Pb. In addition to the criteria pollutants for which there are NAAQS, USEPA also regulates MSATs. The nine priority MSATs are: benzene, 1,3-butadiene, formaldehyde, acrolein, acetaldehyde, diesel particulate matter, ethylbenzene, naphthalene, and polycyclic organic matter. These MSATs have been associated with causing health issues and therefore, an analysis of MSATs can be used in part to identify risks to public health.[18]

Results of the air quality analysis completed for the DEIS showed MSAT emissions are expected to remain the same or slightly decrease for all Build Alternatives when compared to the No Build Alternative for 2040, the design year. In addition, all MSAT pollutant emissions were expected to significantly decline in the Opening (2025) and Design (2040) years when compared to the base conditions (2016) for the Build Alternatives in the DEIS. These reductions occurred despite projected increase in VMT from 2016 to the 2025 and 2040 build scenarios, base, opening and design years, respectively. The MSAT analysis was updated for the Preferred Alternative as part of the FEIS. The results indicate that while MSAT emissions may increase slightly in 2045, the new design year, in localized areas due to an increase in VMT, there will be an overall significant decline (average 89.29% percent) in MSAT levels from existing conditions (2016). Refer to **DEIS, Appendix I** and **FEIS, Appendix K**.

While much work has been done to assess the overall public health risk from traffic proximity and MSATs exposure, it is a continuing area of research and the tools and techniques for assessing project-specific health outcomes as a result of lifetime MSAT exposure remain limited. Per FHWA's Updated Interim Guidance on MSAT Analysis in NEPA Documents (2018), information is incomplete or unavailable to credibly predict the project-specific health impacts due to changes in MSAT emissions associated with a proposed set of highway alternatives. The outcome of such an assessment, adverse or not, would be influenced more by the uncertainty introduced into the process through assumption and speculation rather than any genuine insight into the actual health impacts directly attributable to MSAT exposure associated with a proposed action.

These limitations impede the ability to evaluate how potential public health risks posed by MSAT exposure should be factored into project-level decision-making within the context of a NEPA Study such as the Study. However, the Final Air Quality Technical Report for the FEIS includes a more detailed discussion of the uncertainties associated with predicting health impacts of project alternatives. Refer to **FEIS, Appendix K.** The FEIS summarizes that "[a]ir toxics emissions from mobile sources have the potential to impact human health" (FHWA, 2018). The Health Effects Institute (HEI), which has conducted several FHWA-funded studies as documented in FHWA Guidance Appendix D, *FHWA Sponsored Mobile Source Air*

[18] https://www.epa.gov/mobile-source-pollution

Toxics Research Efforts (refer to FEIS, Appendix K), published a literature review of 700 studies examining the public health effects of traffic-related air pollution. The HEI literature review concludes that:

> *"[m]any aspects of the epidemiologic and toxicologic evidence relating adverse human health effects to exposure to primary traffic-generated air pollution remain incomplete. However, the Panel concluded that the evidence is sufficient to support a causal relationship between exposure to traffic-related air pollution and exacerbation of asthma. It also found suggestive evidence of a causal relationship with onset of childhood asthma, non-asthma respiratory symptoms, impaired lung function, total and cardiovascular mortality, and cardiovascular morbidity, although the data are not sufficient to fully support causality. For a number of other health outcomes, there was limited evidence of associations, but the data were either inadequate or insufficient to draw firmer conclusions." (HEI, 2010)*

MDOT SHA and FHWA recognize that EJ populations who live in areas with high USEPA and MD EJSCREEN EJ Index scores (**FEIS Chapter 5, Section 21 and Appendix F, Section 5.4.4A**) may experience air quality impacts from construction activities and highway operations more acutely than populations with lower EJ Index scores because those populations have higher sensitivity and exposure to pollutants. MDOT SHA has committed to implementing emission control measures aimed at minimizing impacts to air quality throughout construction. These include implementing a *diesel emissions program* to minimize air pollution, including MSATs, implementing a *GHG reduction program*, instituting an *anti-idling policy* to avoid unnecessary idling of construction equipment to reduce engine emissions and provide benefit to those that live and work in or adjacent to the anticipated construction area, and implementing a *truck staging area plan* for all construction vehicles waiting to load or unload material to locations where emissions will have the least impact on sensitive areas and the public. Additionally, measures to reduce fugitive dust during construction will be implemented. Refer **to FEIS Chapter 5, Section 5.21** and **FEIS, Appendix F, Section 5.4.4.A**

Additional measures to reduce MSAT and criteria pollutant emissions that are part of the project include transportation demand management strategies such as congestion pricing through the addition of managed lanes, incentivizing transit, carpool and vanpool with three or more users (HOV 3+) by allowing travel toll free thus reducing reliance on single occupancy vehicles and providing new or upgraded bicycle and pedestrian improvements. Lastly, measures to reduce emissions during construction have been committed to and are detailed in **Chapter 5, Section 5.8.4** of this FEIS.

M. Utility Impacts and Costs of Repairs

Many comments addressed the project's potential for impacting existing infrastructure in the study area, with an emphasis on water utilities, and expressed concern over the cost of any relocation efforts and whether those costs would be passed on to utility customers such as Washington Suburban Sanitary Commission (WSSC) customers. Many commenters wrongly concluded that cost estimates for the relocation of utilities was not included in the preliminary cost estimates in the DEIS.

From the earliest stages of the NEPA process, MDOT SHA has coordinated with WSSC and other utility providers concerning potential impacts that would require the relocation of existing utility infrastructure.

During the NEPA process, impacts to utility infrastructure and potential relocations have been considered. As the project advances from planning to final design, the scope and cost of utility relocations will be further refined in close coordination with WSSC and other utility providers.

During predevelopment work for Phase 1, the selected Developer, is working collaboratively with MDOT SHA and our utility partners to further identify, avoid and reduce any impacts to utilities and, where necessary, develop plans to relocate utilities in the most efficient and accommodating manner as possible. To the extent applicable, the Developer is required to adhere to the utility provider's regulations, design standards, and specifications and coordinate any design and construction with the utility provider.

Potential cost of utility relocation has consistently been factored into the overall estimates developed for the project. The reduced footprint of proposed improvements associated with the Preferred Alternative as compared to the Build Alternatives discussed in the DEIS, together with ongoing coordination to identify, avoid and minimize conflicts with existing infrastructure to the maximum extent practicable have lowered the cost estimates significantly. It is too early in the predevelopment process to determine the exact scope and cost of any utility relocations that may still be required, but it now appears that these costs will be significantly lower than WSSC's original estimates. The cost estimate for the Preferred Alternative includes the cost of utility relocation based on planning level information but these costs are significantly lower than WSSC's original estimates.

N. Indirect and Cumulative Effects

Comments raised on the DEIS suggested that an assessment of indirect and cumulative effects (ICE) was incomplete or inadequate. Other comments questioned why a final analysis of ICE was not included in the SDEIS.

The ICE assessment for the Study was conducted in accordance with MDOT SHA's current ICE guidelines (MDOT SHA, 2012) and in accordance with NEPA's CEQ implementing regulations. The methodology was reviewed and agreed up by FHWA. Refer to **DEIS, Chapter 4, Section 4.22; DEIS, Appendix O; SDEIS Chapter 4, Section 4.22; FEIS Chapter 5, Section 5.22;** and **FEIS, Appendix Q**. The ICE analysis considered the effects of the proposed action in the context of general trends on population, employment, and general growth based on master plans, reports, census and geographic data, historic maps, and aerial imagery. The ICE also considered: planning and forecasting documents concerning past, present, and reasonably foreseeable future economic development; the history and origins of the proposed action and previous studies; and data reflected in previously completed NEPA documents to understand the potential for regional ICE.

The analytical assumptions underlying the ICE based on the Build Alternatives documented in the DEIS did not change and remain valid for the analysis performed in the SDEIS. This updated analysis showed that the reduced footprint of the Preferred Alternative within the Phase 1 South limits should result in a substantial reduction in the potential for ICE as compared to the impacts associated with the potential development of managed lanes in the entire study area.

Concerning potential indirect effects, the DEIS demonstrated that potential changes in travel patterns by way of increased capacity along existing infrastructure, especially in more rural, less-developed portions of the ICE Analysis Area and other locations where undeveloped land exists would be most likely to experience pressure for new development from improved access along the I-270 and I-495 corridors.

Therefore, the Prince George's County portion of the study area was the most likely to experience indirect or project-related growth impacts because the location of the managed lanes and proposed interchanges was aimed as supporting growing areas or those that the County has planned for additional growth. However, because the Preferred Alternative would not result in any roadway improvements in Prince George's County, these potential indirect impacts would most likely not occur as a result of the proposed action.

Other portions of the study area that would not include roadway improvements as a result of the Preferred Alternative had already been assessed as unlikely to experience indirect effects due to the highly built-out and/or preserved land uses. Due to increased capacity and access to managed lanes associated with the Preferred Alternative, more rural, less developed portions of the ICE analysis area could experience more pressure for new development. However, within the Phase 1 South limits, much of the land use has already been developed and there is a paucity of unoccupied land available for new development. Much of the unoccupied land is also designated by planning documents for preservation, further reinforcing the small likelihood of development pressure as a result of new or improved access to I-495 and I-270. Refer to **SDEIS, Chapter 4, Section 4.22.3, FEIS, Chapter 5, Section 5.22,** and **FEIS, Appendix Q.**

The SDEIS and FEIS explain how the Preferred Alternative could result in certain indirect effects impacting natural resources, including forests, wetlands, wetland buffers, and waterways. The proposed action could result in additional roadway runoff, sedimentation, changes to hydrology, and facility-related run-off quality and quantity, as well as changes in drainage patterns and imperviousness. Refer to **SDEIS, Chapter 4, Section 4.22.3, FEIS, Chapter 5, Section 5.22,** and **FEIS, Appendix Q.** Indirect downstream impacts to surface water would be minimized through the development and application of approved erosion and sediment control plans and stormwater-related BMPs. Any wetlands impacts associated with proposed public or private development would require permitting by USACE and state regulatory agencies, as well as review and approval by county governments to ensure consistency with environmental protection guidelines. Coordination with federal, state, and local agencies overseeing water resources in the ICE Analysis Area has continued and resulted in determining mitigation for unavoidable impacts. Refer to **FEIS Chapter 5, Section 5.22** and **FEIS, Chapter 7**. Other potential indirect effect, such as additional noise impacts, could occur to communities from greater traffic volumes on connecting roadways. Indirect impacts would be minimized by adherence to current master plans and zoning regulations pertaining to new development.

With regard to cumulative effects, past and present growth and development have led to both positive and adverse effects. The region's past and recent growth has resulted in improved local economies and led to the provision of enhanced community facilities, transportation infrastructure, and recreational resources benefiting residences and businesses. Construction and expansion of transportation facilities, in particular, has facilitated economic growth by providing access to employment and community facilities and allowing for more efficient movement of goods and services. Refer to **DEIS, Chapter 4, Section 4.22; DEIS, Appendix O, Section 3; SDEIS Chapter 4, Section 4.22.3.B; FEIS, Chapter 5, Section 5.22; and FEIS, Appendix Q**.

The proposed action is one of many reasonably-foreseeable future transportation projects designed to address both existing volumes, as well as anticipated growth. The proposed action alone would provide

improved access, mobility, and traffic conditions. Combined with the other projects identified in the ICE Technical Report, it is anticipated that there would be a greater overall benefit to local communities, especially in light of anticipated increased population and employment in the ICE Analysis Area. Refer to **FEIS, Appendix Q**. These cumulative demographic trends are expected to increase traffic volumes and create eventual need for more transportation improvement projects.

The proposed action, along with other future transportation projects could result in adverse effects, including additional noise impacts, with a potential cumulative effect on communities in the vicinity of improved and new roadways. Cumulative impacts to water quality could occur from stream loss and the incremental increase of impervious surfaces that may increase runoff from past, present, and future development projects. These would be minimized through the use of BMPs during construction and use of SWM facilities. The incremental effect would be minimized by the required permitting process, which would identify avoidance, minimization, and mitigation as needed to offset resource losses.

The final ICE analysis on the proposed action is included in the **FEIS, Chapter 5, Section 5.22** and **FEIS, Appendix Q**.

O. Safety

Several comments raised concerns about the proposed action's potential impacts on vehicle, pedestrian, and/or bicycle safety. These comments assert that the construction of enhanced interchanges could impact pedestrian and bicycle safety and that an increased number of highway lanes and/or access to managed lanes will increase weave movements, thereby compromising travel safety. As summarized below, the project will implement accepted engineering techniques to address safety issues during project construction and operation.

The Preferred Alternative would maintain the existing separation between highway operations and local traffic, bicyclists and pedestrians through access limits and physical barriers in accordance with state and Federal design standards and regulations. Refer to **FEIS, Chapter 3, Section 3.1.5**. With respect to pedestrian safety concerns for those areas located outside the highway facilities themselves, where direct access ramps would be constructed, alterations to traffic patterns and roadway/sideway networks would be mitigated by the inclusion of signage, high-visibility crosswalk markings, and pedestrian countdown signals. Existing pedestrian and bicycle facilities impacted by the proposed action would be replaced in-kind or upgraded to meet the current master plan recommended facilities. Any such replacements would be coordinated with county and pertinent local jurisdictions, in compliance with Maryland law.

Although safety was not one of the specific elements identified in the Study's Purpose and Need, the safety goal is to reduce the number and severity of traffic crashes within the study limits. A review of the existing crash history and a quantitative analysis of the safety impacts of the proposed action is included in the FEIS as part of the MDOT SHA's Application for Interstate Access Point Approval documentation required by FHWA (**FEIS, Appendix B**). The crash history review has identified crash patterns and high frequency crash locations on all freeway segments, ramps, ramp terminals, and crossing roadways within the project area and evaluated how the Preferred Alternative will help address existing traffic safety concerns. The quantitative safety analysis included predictive safety analyses using the methodologies of the Highway Safety Manual (HSM), published by AASHTO, to calculate projected changes in crash frequency using Safety Performance Functions and Crash Modification Factors, where appropriate.

Additionally, the Enhanced Interchange Safety Analysis Tool (ISATe), an industry-accepted model recommended by FHWA, was used to develop crash predictions for the proposed ramp terminals at the new direct access ramps and in locations where existing general purpose access is being modified. Approval of the IAPA will be contingent on demonstrating that the project does not have a significant adverse impact on the safety of the Interstate facility or on the local street network.

The design of the proposed action is undergoing extensive constructability reviews, and a Transportation Management Plan and Maintenance of Traffic plans will be developed in final design to ensure that it can be built safely and efficiently with minimal disruptions. The HSM and ISATe analysis summarized in the IAPA will be updated during final design, as needed. FHWA's ultimate approval of final design will take those safety impacts into account.

During construction, the project would also implement a temporary detour network to avoid a disruption in pedestrian and bicyclist connectivity. In general, the maintenance of all types of traffic during construction is a major project consideration.

By providing additional travel choices, the proposed action may also mitigate existing safety issues such as high frequency of congestion related crashes. certain safety issues. Specifically, the Preferred Alternative is expected to reduce congestion on the interstates within the study limits and local roadways networks, allowing for more reliable travel times for all users, including emergency responders. Refer to **FEIS, Appendix A**, Final Traffic Analysis Report.

P. Regional Economy

Commenters noted that construction of the proposed action, and the resulting expanded highway capacity and roadway choice would improve the regional economy, through initial job creation and enhanced mobility in the study area. However, some commenters noted a belief that the proposed action would have a negative economic impact to the surrounding communities.

Transportation improvements implemented as part of the proposed action would offer significant economic benefits to the State of Maryland and the NCR. These benefits would be realized both in the short-term, as a result of planning and construction, and in the long-term because of anticipated improved traffic performance along the main highway corridors.

Initially, project planning and construction activity would present potential beneficial impacts to varying sectors of the region's economy. An increase in employment and job opportunities for future permitting and design work, construction workers, resource suppliers, and inspectors would result before and during construction of the proposed action. In addition, the use of materials to construct the improvements, and purchases of goods and services generated by construction, could create a short-term improvement in the local economy by increasing business at area commercial and retail establishments. Economic activity associated with the Study would produce future tax revenue which would be derived from commercial sales of materials required for construction. Refer **to DEIS, Chapter 4, Section 4.24.2** and **FEIS, Chapter 5, Section 5.23.**

In terms of overall employment opportunities, the greater than $3 billion in private infrastructure investment associated with Phase 1 South will support thousands of jobs per year for this project with a large majority of those jobs during construction. The Developer will seek to partner with community

organizations, community colleges and universities in addition to labor unions and local businesses to maximize opportunities for workforce training and apprenticeships. The Developer has already entered into several MOUs with local organizations to collaborate on providing career training opportunities through programs such as Academy of Success. MDOT will work with the Developer to ensure the Developer's Workforce Development plan and job seekers portal is effective in maximizing the number of opportunities and sufficient resources for local minority, women, and veteran job seekers. Moreover, the project will provide many opportunities for Disadvantaged Business Enterprises (DBE) in the region. The Developer has committed to meet a 26% DBE participation contract goal for predevelopment work (e.g., design, funding, accounting as well as other professional services and pre-construction services). Subsequent DBE participation goals will be established for design/professional services, construction and operations and maintenance activities for future project phases. Likewise, the Developer has already started to collaborate with those MOU local organizations on providing capacity building and business development programs and initiatives. MDOT also will work with the Developer to ensure the Developer's DBE Plan and DBE Participation Schedule commitment to the utilization of disadvantaged businesses for the project professional services and construction opportunities. The business development and capacity building of these local DBE businesses will strengthen the overall local business community and create growth in the regional economy.

Longer term, reduced congestion, enhanced trip reliability, and additional roadway choices would result in improved traffic performance that would also create economic benefits. Specifically, efficient, and reliable highway movement is necessary to accommodate passenger and freight travel that move goods and services through the region, with those movements increasingly dependent on the performance of I-495 and I-270. Refer to **DEIS, Chapter 1, Section 1.7.2**. Thousands of employers in the NCR depend on the study corridors for employee commuting and delivery access. As illustrated in **Figure 1-3** of the DEIS, approximately 54% of residents in Montgomery County and 56% of residents in Prince George's County travel ten or more miles from their homes for work, with employment destinations and workers' home destinations densely clustered along the I-495 and I-270 study corridors (Maryland Department of Labor, Licensing, & Regulation, 2018).

Moreover, freight-dependent industries, including goods transportation services, raw materials/intermediate products transportation services, and retail/consumer outlets, account for 19 percent of the NCR's Gross Domestic Product, which totaled $464 billion in 2013 (NCRTPB, 2016c). Among these industries within the NCR, the truck transportation mode accounts for 86% of the total weight and 79% of the total value of freight moved (NCRTPB, 2016c). Reliable travel times are critical to the movement of both commuting employees and freight trucks and, therefore, the economy of the NCR. Travelers, commuting employees, and freight trucks are especially sensitive to non-recurring delays (unanticipated disruptions), which are indicative of poor reliability, as they disrupt scheduled activities and manufacturing/distribution activities (TPB, 2016d). Refer to **DEIS, Chapter 1, Section 1.7** and **DEIS Appendix A, Section 3.10**.

By providing additional roadway capacity through managed lanes, the proposed action would improve the movement of employees, and goods and services which would benefit the local and regional economy. Logistics costs decrease as trucks and commercial vehicles travel in less congested conditions, spending less time in route, thus improving supply chain fluidity for regional industries dependent on truck traffic. Refer to **SDEIS, Chapter 4, Section 4.24.2** and **FEIS, Chapter 5, Section 5.24.2**. The proposed action would

also accommodate increased traffic and congestion attributed to the projected regional population growth between 2010 and 2045. The improved function of I-495 and I-270, access to travel choices, and enhanced trip reliability would maintain the area's desirability for future economic activity. Overall, a strengthened regional economy can be expected to increase tax revenues resulting from higher assessed homeowner property values and for businesses that improve and build new structures. Refer to **DEIS Chapter 4, Section 4.22; DEIS, Appendix O, Section 3; FEIS Chapter 5, Section 5.22;** and **FEIS, Appendix Q**.

Finally, because changes in the Preferred Alternative described in the SDEIS and FEIS have eliminated all business relocations, the project would not negatively impact access to area businesses or employers. There would be no overall impact to the distribution of worker occupation within the study area.

9.3.5 P3 Program

Many comments addressed the State's plans to develop the project through a P3 and expressed concerns that future toll revenues may not cover private developer costs, requiring an additional subsidy from the State. In addition, comments on the DEIS and SDEIS focused on project costs generally, and concerns that the Preferred Alternative is not financially viable.

MDOT does not have enough funds to construct improvements of the magnitude associated with the Preferred Alternative. Additionally, MDOT does not have enough bonding capacity to take out loans to pay for the improvements, even with the promise of tolls to pay them back. Therefore, MDOT elected to use a P3 approach to fund the project.

A P3 is an alternative model for delivery of a capital project in which the governmental sector works with the private entities. The particular P3 model identified for Phase 1 is a progressive multi step approach. This P3 model, like others, seeks to make the most of private sector expertise, innovation, and financing to deliver public infrastructure for the benefit of the public owner and users of the infrastructure. This P3 agreement includes designing, building, financing, operating, and maintaining a transportation facility, however, MDOT SHA would continue to own all lanes and infrastructure on I-495 and I-270 and ensure the highway meets their intended transportation function.

Many comments expressed concern over the use of the P3 model, specifically pointing out challenges to the delivery of the Purple Line project, which was also done through a P3 agreement. While concerns over the Purple Line project are understandable, the Study P3 Agreements are different from the Purple Line and other P3s in Maryland, in that this process uses a multi-step Progressive P3 model to further identify and reduce impacts and risks. The first step of this process is the collaborative Predevelopment Work. The evaluation criteria for the Predevelopment Work focused on reducing project risk, providing schedule certainty and the ability to deliver Phase 1 with no State of Maryland funding. The Developer for the project proposed a sound approach to delivering Phase 1 that will greatly reduce the likelihood of challenges that other projects have faced. The Progressive P3 approach allows the Developer to closely collaborate with MDOT, MDTA and other stakeholders during the Predevelopment phase before finalizing its design and pricing, which will reduce and mitigate risks and challenges that would exist in a more traditional procurement process as well as other P3 models.

Additional comments questioned the process by which the state selected the approved Developer. The Maryland BPW approved the P3 Program in June 2019 with a supplemental approval in January 2020.

These approvals allowed MDOT SHA to use the Progressive P3 approach to design and construct Phase 1 of the P3 Program. This approach allowed the solicitation process to proceed concurrently with the NEPA process. The solicitation process included provisions to end should the NEPA process conclude with the No Build Alternative as the Selected Alternative in the ROD.

MDOT issued a Request for Proposal seeking interested phase developers in February 2020. MDOT and MDTA, with participation from local jurisdictions, developed a shortlist of four highly qualified Proposers in July 2020. Three of the four shortlisted firms submitted proposals to enter into the P3 Agreement for Phase 1 to assist in the pre-development work, deliver. In February 2021, MDOT SHA identified the Selected Proposer that could best deliver the project in a manner most advantageous to the State.

On August 11, 2021, in accordance with Maryland law, MDOT and MDTA received approval from the BPW to award the Phase 1 P3 Predevelopment Agreement to the Developer. In accordance with the terms and conditions of the Phase 1 P3 Agreement, the Developer has proposed an estimated $300 million for transit services in Montgomery County over the operating term of Phase 1 South. Moreover, upon financial close of the Section P3 Agreement for Phase 1 South, MDOT is committed to fund not less than $60 million from the Development Rights Fee provided by the Developer for the design and permitting of high priority transit investments in Montgomery County and MDOT is committed to deliver the Metropolitan Grove Bus Operations and Maintenance Facility including necessary bus fleet.

Only after approval of a ROD for the Managed Lanes Study with a Build Alternative selected will MDOT seek approval from the BPW to move forward with a Section P3 Agreement with a subsidiary of the Phase Developer who will be responsible for final design, construction, financing, operations, and maintenance of a particular section.

The Preferred Alternative for Phase 1 South has an estimated cost ranging between $3.75 to $4.25 billion, which is substantially smaller than that the anticipated $9-$11 billion for the more extensive build alternatives in the DEIS that included construction on sections of I-495 east of the I-270 Spurs. For purposes of comparing alternatives, the DEIS presented a broad analysis of the potential for each alternative to be financially self-sufficient. The analysis included multiple factors to determine potential cash flows, such as a range of capital costs, initial revenue projections, preliminary operations and maintenance costs, and assessed with a range of interest rates. The **DEIS, Table 2-6**, shows a range of positive, as well as negative, cashflow outcomes. This analysis was necessary to account for various market conditions and could change as the P3 program continues forward. From the outset, MDOT SHA has stated its intention to deliver all planned improvements for the Study at no net cost to Maryland taxpayers. That commitment stands.

9.3.6 Tolling

Some comments expressed a general opposition both to the use of managed or tolled lanes on I-495 and I-270 and to management of those lanes through a P3 arrangement. Other comments sought information regarding the process by which toll rates would be established and expressed concern that toll rates would be affordable or inequitable to lower-income populations. Refer to **Section 9.3.4 D** of this chapter for information on tolling and EJ.

The SDEIS and FEIS demonstrate how the development of managed lanes will effectively provide tangible operational benefits even though the Preferred Alternative includes no action or no improvements for a large portion of the study area. Tolling as a congestion management tool has been considered in the region as outlined in the *Visualize2045* Plan, the latest financially CLRP that was approved by the NCRTPB on October 17, 2018. The *Visualize2045* Plan identified Seven Aspirational Initiatives for a Better Future. One of the seven initiatives is "Expand Express Highway Network," which includes congestion-free toll roads, building on an emerging toll road network, and new opportunities for transit for express buses to travel in the toll lanes. Moreover, the State's use of the P3 model can provide funding for major transportation improvements that may not otherwise be possible given fiscal constraints. Each of these concerns is addressed in turn.

A. Opposition to Price Managed Lanes or Tolling Public Roads

Commentors questioned the purpose served, the need for tolling, and expressed general opposition to tolling public roads. Specifically, comments expressed concern over implementing privatized toll roads fearing loss of "free" lanes. Others specifically noted concerns about "occupancy-based tolling" being ineffective. FHWA and MDOT SHA have considered the comments in opposition to managed or tolled lanes in the context of the Study's Purpose and Need and the proposed action's ability to provide substantial, tangible operational benefits to I-495 and I-270. General purpose lanes are susceptible to congestion as traffic volumes increase. Once the traffic volume reaches a certain threshold, traffic operations slow, remaining congested until traffic volumes decrease. Managed lanes remedy this issue by combining two highway management tools: (1) Congestion Pricing and (2) Lane Management.

Congestion Pricing is the use of pricing to moderate demand during peak periods. In the highway sector, congestion pricing involves the introduction of road-user charges that vary with the level of congestion and/or the time of day, providing incentives for motorists to shift their trips to off-peak times, to less-congested routes, or to alternative modes of travel. Higher prices may also encourage motorists to consolidate trips or eliminate them entirely. When peak-period volumes are high, a shift in a relatively small proportion of trips can lead to substantial reductions in overall congestion levels, resulting in more reliable travel times. Refer to **DEIS and SDEIS, Chapter 3, Section 3.3.3** and **FEIS, Chapter 4, Section 4.3.3**.

Lane Management involves restricting access to designated highway lanes based on occupancy or vehicle type. By limiting the number of vehicles in designated lanes, it is possible to maintain a desirable level of traffic service. Refer to **DEIS Chapter 2, Section 2.5** and the National Cooperative Highway Research Program, *Research Report 835, Guidelines for Implementing Managed Lanes*.

The price managed lanes included in the proposed action are HOT lanes. HOT lanes often implement a combination of vehicle occupancy requirements and variable tolling, whereby HOVs may use the roadway for a reduced toll rate or free of charge, while low occupancy vehicles pay higher toll rates. Toll payments for these lanes may vary by time of day and level of congestion. Minimum vehicle occupancy, such as a minimum of three or more occupants (HOV 3+), is a common eligibility requirement for managed lanes. Such occupancy restrictions allow for the movement of more people relative to the total number of vehicles. Importantly, under the proposed improvements (1) all travelers will be able to continue using the same number of existing general purpose lanes for free and (2) HOV with three or more users (HOV 3+) will be able to use the managed lanes for free. The proposed managed lanes are designed to add value by providing traffic relief throughout the corridor, including in the free general purpose lanes.

Toll facilities collect and provide funds for transportation improvements throughout the corridor that would not otherwise be funded or fundable due to the high cost. In Maryland, typical roadway infrastructure improvements are funded through use of Maryland's Transportation Trust Fund. However, the State's traditional funding sources, including the Trust Fund, are unable to effectively finance, construct, operate, and maintain highway systems of the magnitude required to enhance trip reliability in the study corridors. For these sorts of large projects—such as the Study—revenue sources that provide adequate funding are needed to support more immediate capacity improvements. The use of alternative funding approaches, such as pricing, tolling, or fares, provides the potential to address needed large-scale improvements decades earlier than would otherwise be realized using traditional funding. Put simply, the State of Maryland does not have the funds to construct improvements of this magnitude, which have an estimated cost of approximately $3.75 to $4.25 billion. If MDOT SHA were to fund the construction of one general purpose lane per direction for the limits of the Study and re-allocate its entire budget for capital plan expansion ($1.4 billion over the next six years), it would take more than a decade to deliver this alternative. This approach would also leave no additional funding available for other MDOT SHA capital projects across the State of Maryland during that timeframe.

The use of a P3 for this project also reflects state fiscal realities concerning large-scale infrastructure improvements. While MDOT could issue Consolidated Transportation Bonds (CTBs) to finance the construction of additional general purpose lanes, MDOT has a statutory debt limit on CTBs. This remaining amount of funds below the CTB limit would be insufficient to construct additional general purpose lanes. Even with toll revenues, MDOT does not have enough bonding capacity to take out the loans that would be required to pay for the improvements. MDOT has therefore selected a Developer through a competitive process and has entered into a Phase 1 P3 agreement, whereby the Developer will design, build, finance, operate, and maintain the managed lanes for a period of time using the toll revenue. MDOT SHA will continue to own all of the lanes on I-495 and I-270 and ensure the highway meets their intended transportation function.

B. Process for Establishing Toll Rate Ranges, and Setting Toll Rates Within Those Ranges

Many comments received questioned the process by which toll rates and the toll rate range are established in Maryland while other comments raised concern over the ability of the Developer to raise tolls to high levels. Specifically, comments expressed concerns about high toll rates, expensive short, localized trips, and the Developer raising tolls in certain conditions forcing users to sit in traffic or pay a high toll rate. Commentors referenced Virginia toll rates and news articles as examples of the toll rate concern. The goal of the proposed HOT lanes is to maintain free-flowing traffic by using tolls to influence traffic flow. For this project, the HOT lanes will be designed to maintain a minimum average speed of 45 mph or greater for more than 90 percent of the time during the morning and evening weekday peak period. As such, the toll rates will be set to ensure the HOT lanes operate to established operational metrics, which will apply the economic principles of supply and demand to influence the utilization of the HOT lanes. The Developer will be responsible for setting toll rates within the established toll rate ranges that were approved by the MDTA Board in November 2021, following three public comment review periods. As previously mentioned, toll rate ranges will only apply to the HOT lanes, ensuring discounts for qualifying vehicles and no tolls for vehicles with three or more occupants.

The toll-rate range setting process is led by the MDTA, who are the only State entity with the authority to set, revise, and fix toll rates in accordance with Transportation Article, § 4-312 of the Annotated Code of Maryland and COMAR Title 11, Department of Transportation, Subtitle 07 MDTA, Chapter 05, Public Notice of Toll Schedule Revisions (11.07.05). As outlined in the DEIS and SDEIS, the toll rate ranges were determined through a multi-step process that is codified in Maryland law, which provides for public input through public hearings and official public testimony.

A proposed toll rate range was presented to the MDTA Board on May 20, 2021, and the Board voted to take the toll proposal to public hearings and a public comment period, thereby ensuring that the public was engaged in the toll rate range-setting process. The public had the opportunity to comment on the toll rate ranges three times throughout the process as follows:

- Public hearings were held on July 12 and 14, 2021. The comment period lasted from May 20 through August 12, 2021. At the August 26, 2021 MDTA Board Meeting, MDTA staff presented a summary and analysis of public comments received at the public hearings; they also responded to questions from the Board members. A summary of the public comments received and the analysis of the comments is available on the MDTA webpage at: https://mdta.maryland.gov/ALB270TollSetting/PublicParticipation.

- At the MDTA Board Meeting on September 30, 2021, MDTA staff presented the final toll rate range proposal, which was the Board's recommended action. The recommended toll rate ranges for the proposed action, including the information and studies used in the analysis justifying the toll rate range proposal, are available on the MDTA website at: https://mdta.maryland.gov/ALB270TollSetting. Following an approval vote to seek public comment on the recommendation, the second comment period was initiated and ran from September 30, 2021 through October 28, 2021. On November 10, 2021, MDTA staff posted a summary and analysis of comments received on the MDTA website.

- At the MDTA Board Meeting on November 18, 2021, MDTA staff presented the comment summary from the second comment period. MDTA staff also presented the final toll rate range recommendation to the Board. The Board accepted additional public comment from those attending the meeting in-person, before voting to approve the toll rate ranges.

The toll rate ranges consist of minimum toll rates, soft toll rate caps, and maximum toll rates for the HOT lanes. **Minimum Toll Rate:** The minimum toll rate is the lowest toll rate per mile that will be charged at any tolling segment for the HOT lanes or the lowest total toll a customer will pay regardless of how far they travel.

Soft Rate Cap: The purpose of the soft rate cap is to constrain the toll rate charged to customers when throughput and speed performance targets are achieved. This provides customers protection from toll increases when traffic conditions do not justify higher rates. Although not standard practice in the tolling industry, the MDTA is choosing to be one of only two states in the United States to set a soft rate cap to constrain the toll rate as a protective measure for customers. The soft rate cap will always be lower than the maximum toll rate and can be exceeded only temporarily to provide customers who choose to pay a toll for a faster and more reliable trip. The toll rate will continue to decrease once throughput and speed performance targets are achieved, until it is at or below the soft rate cap.

Maximum Toll Rate: The maximum toll rate is the highest per-mile toll rate that may be charged within any tolling segment for the HOT lanes. The actual per-mile rate paid by customers is responsive to real-time traffic. The maximum rate will only be realized under conditions where the soft rate cap is exceeded, which would be during times of deteriorating performance. These operational parameters include managed lanes speed below 50 mph, which would result from high volumes/congestion in the managed lanes. When the soft rate cap is exceeded, the maximum toll rates would remain in effect and be a ceiling to how high toll rates could be set regardless of managed lanes traffic operations.

The minimum and maximum toll rate ranges, and the soft rate cap within them, will be adjusted annually to ensure the toll rates will: (1) keep up with the growing traffic demand for the HOT lanes, (2) account for annual inflation, and (3) achieve the goal of providing a faster and more reliable trip for customers who choose to pay the toll over the life of the project. MDTA approval of the toll rate range included annual escalation of these values to account for inflation and economic growth of the planned timeframe of the P3 agreement. The annual escalations will automatically apply to the toll rates and do not require additional toll rate setting processes or approval of the MDTA Board. Toll rates will be set dynamically, meaning they could change up to every five minutes based on traffic volumes or speed in the HOT lanes to provide customers who choose to use the HOT lanes and pay a toll, a faster and more reliable trip. The actual toll rates will change based on real-time traffic within each tolling segment, and current toll rates will be displayed on electronic roadway signs, allowing drivers to know their toll prior to entering the HOT Lanes. Tolls will be collected electronically at highway speeds, using overhead gantries, with no toll plazas or toll booths (cashless tolling). The recommended toll rate ranges mentioned above reflect a base minimum per-mile toll rate of 17 cents a mile. The maximum per mile toll rate for 2-axle E-ZPass vehicles is $3.76 per mile. This value varies based on vehicle classifications (i.e., number of axles) and payment type (e.g., E-ZPass, pay-by-plate, video tolling). Refer to MDTA's webpage for the approved toll rate range: https://mdta.maryland.gov/ALB270TollSetting/TollRateRangeSettingProcessAndApprovedTollRateRanges.

9.3.7 Public Involvement

Comments raised general concerns over sufficiency of public involvement during the NEPA Study, specific concerns over access and availability of the DEIS and SDEIS during the pandemic, and requested extension of the DEIS and SDEIS public comment periods. From the outset of the Study's NEPA process, FHWA and MDOT SHA developed a comprehensive public involvement and engagement strategy designed to obtain input from stakeholders around the entire study area. This strategy combined traditional opportunities for commenting on the DEIS and SDEIS in addition to wide-ranging outreach to community organizations (e.g., church groups, homeowners' associations, public interest groups, and governmental entities), with particular sensitivity and outreach to identified EJ communities. The public involvement and engagement process, starting in early 2018 and continuing to the present, considered the vast diversity of community resources. MDOT SHA's strategy also changed over time to reflect the realities of conducting the NEPA process in part during the COVID-19 global pandemic. The efforts during the Study to engage with the public in a safe manner during the pandemic became recognized based on its strategy of ensuring safety while still providing the same opportunities for meaningful participation by the public in the NEPA process. Refer to **SDEIS Chapter 7, Section 7.2.1**. MDOT SHA and FHWA were able to make the DEIS available and accessible and hold public hearings in recognition of evolving social gathering and public health restrictions. The public involvement conducted throughout the Study has been documented in the

following reports: **DEIS, Chapter 7 and Appendix P; SDEIS, Chapter 7;** and **FEIS Chapter 8 and Appendix R**.

The Study began with publication of a Notice of Intent (NOI) on March 16, 2018. At the same time, the I-495 & I-270 Program website was launched as a means to share information and to gather feedback from the public (https://oplanesmd.com/). Pursuant to the CEQ regulations, publication of the NOI also began a formal "scoping" period. MDOT SHA conducted a series of four Public Scoping Open Houses around the study area, which hosted close to 400 attendees across Montgomery and Prince George's counties. These open houses were widely advertised through advertisements in traditional media, correspondence, information posted on the Program website, and a variety of social media posts. Refer to **DEIS, Appendix P**.

In addition to the mandatory scoping requirements, MDOT SHA conducted additional information sessions, open houses, and provided comment periods during the development of the range of alternatives to be considered in the DEIS. Outreach on the first stage of alternatives development, the Preliminary Range of Alternatives, was conducted between July 2018 and January 2019. As with the first round of public scoping open houses, four large Preliminary Alternatives Public Workshops were broadly attended, with close to 600 attendees, including over a dozen elected officials. Attendees were able to listen to a presentation regarding the project, review display boards and a summary handout, ask questions of Study team, interact with technical staff at small working group tables, and comment publicly on project information in front of the agency and other citizens. The comment period on the Preliminary Range of Alternatives was broadly utilized, with 2,282 submissions via hard copy comment forms, online forms, telephone, mail, and email. Refer to **DEIS, Appendix P.**

This transparent process of alternatives development continued into 2019 with another series of public meetings and outreach focused on the ARDS in the DEIS. From March to mid-June 2019, MDOT SHA conducted another eight large ARDS Public Workshops and offered another comment period between April 11, 2019 and June 14, 2019. Over 1,000 people attended the workshops and the agency received over 1,000 comment submissions at the workshops or by mail or email.

Knowing the broad extent of public interest in the Study and need for ample public involvement, MDOT SHA also conducted over 40 meetings during the alternatives development stage with various community associations, legislators, stakeholder organizations, and large property holders in the study area. Refer to **Table 5-5, DEIS, Appendix P**. In addition, MDOT SHA extended this outreach strategy to include many informal opportunities for interaction with the Study team and agency staff between June 2019 and April 2020, prior to official publication of the DEIS. MDOT SHA conducted over 100 such meetings during that time period with individuals as well as small and large groups. All these meetings were organized and conducted in addition to the required formal comment periods.

In total, over 3,900 comments were received during the study comment periods from Scoping through ARDS. These comments were organized into relevant comment themes and summarized in respective reports. To be fully transparent and to ensure all comments were able to reach other citizens, the comment summary reports, including the individual submissions, were made publicly available on the Program website.

Finally, based on the extensive comments received both in and outside of formal comment periods, MDOT SHA made substantive changes to the Preliminary Range of Alternatives considered, added new alternatives, altered study elements of proposed build alternatives, conducted additional analyses and outreach, refined design to avoid and minimize impacts and ultimately chose a Preferred Alternative that addressed concerned raised over the life of the study.

The DEIS was published on July 10, 2020 and was made available on the I-495 & I-270 P3 Program webpage (https://oplanesmd.com/deis/), on the USEPA EIS Database webpage and at multiple public locations in hard copy in Montgomery and Prince George's counties, Maryland; Fairfax County, Virginia; and Washington, D.C. Following publication of the DEIS, FHWA and MDOT SHA provided a 90-day comment period, which is twice the minimum time required by the CEQ regulations. Based on input from the general public, community partners, stakeholders, and local and federal officials, however, MDOT SHA supported extending the DEIS comment period and made a formal request to FHWA, which has authority to grant any extension. FHWA approved this request and granted a 30-day extension of the public comment period for the DEIS. All in all, the DEIS was made available for comment and review from July 10, 2020 through and including November 9, 2020, a total of four months. During this extended comment period, the agencies received close to 3,000 comments.

The SDEIS published on October 1, 2021 was prepared to consider new information relative to the Preferred Alternative, Alternative 9 - Phase 1 South. Building off the analysis in the existing DEIS, the SDEIS disclosed new information relevant to the Preferred Alternative while referencing the DEIS for information that remained valid. The SDEIS also described the background and context in which the Preferred Alternative, Alternative 9 – Phase 1 South was identified. The SDEIS was available for the public to review and comment on the Preferred Alternative during a 45-day comment period, which was later extended an addition 15 days. The SDEIS was also made available on the I-495 & I-270 P3 Program webpage (https://oplanesmd.com/sdeis/), on the USEPA EIS Database webpage and at multiple public locations in hard copy in Montgomery and Prince George's counties; Maryland, Fairfax County, Virginia; and Washington, D.C.

Recognizing the importance of providing access to the DEIS and supporting documents in a time with COVID-19 restrictions, MDOT SHA provided the opportunity for persons without electronic access to view the DEIS in hard copy at multiple locations across the study area. The agency employed innovative approaches to identify locations that were convenient to affected communities, despite widespread closures of many public facilities as a result of the pandemic. The DEIS was available for viewing at 21 public locations. Temporary facilities to house the DEIS for public review were provided and staffed at eight public library parking lot locations along the study corridors, as well as one location in Washington, D.C. Lobbies at six centrally located post offices in Montgomery and Prince George's counties were also used for DEIS viewing locations. Locations were available during the week and weekend days, with day and evening hours to provide adequate options for the public to view the documents. Lastly, six select MDOT SHA, MDTA, and VDOT offices within or near the study area were also open to the public for viewing the DEIS and Technical Reports. Each DEIS viewing location was ADA-compliant, provided hard copy documents and computers for electronic viewing, and were equipped with required Personal Protective Equipment (PPE), including masks, hand sanitizers, and antibacterial cleaning solution. A strict safety protocol, in compliance with the State-mandated COVID-19 guidelines, was followed to ensure the safety of the public and study staff. DEIS comments were accepted through the following ways:

- Oral testimony at one of the public hearings in the main hearing room;
- Oral testimony to a court reporter at a private room at the public hearing;
- Written comments on a comment form at the public hearing;
- Letters to the P3 Program Office;
- Online comment forms;
- Emails to the P3 Program Office; and
- Voicemail.

With this extended formal comment period and a continuous series of wide-ranging informal efforts to ensure a variety of safe opportunities to participate in the NEPA process, sufficient time was allowed for public consideration of and comment on the DEIS and SDEIS.

Providing access to information related to MDOT SHA's proposed action and the opportunity to participate in the decision-making process is particularly important with respect to low-income and minority populations, also known as EJESD communities. Refer to *Executive Order 12898: Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*. MDOT SHA made concerted efforts to identify the location of and to engage these communities throughout the process. **Table 7-1 of DEIS, Appendix P** summarizes the extensive number of workshops, stakeholder meetings, pop-up information booths at public events, and other gatherings prior to publication of the DEIS which were specifically focused on or conducted within EJ populations. MDOT SHA also ensured that these communities were targeted to obtain information about the study and progress of the NEPA review through mailings to schools, places of worship and affordable housing complexes (in multiple languages) throughout the study area. The scope of EJ outreach is also summarized in **DEIS, Appendix E**.

The FEIS will be available for a 30-day Notice of Availability through the Program website before the ROD is approved. Public involvement and engagement will continue after the formal NEPA process is complete and the ROD is issued. As a requirement in the P3 Agreement, the Developer must provide a public outreach and engagement plan. After the NEPA stage of the project concludes with publication of the ROD, the Developer would coordinate with MDOT SHA to facilitate an early and ongoing collaborative dialogue to engage stakeholders, local communities, and property owners though final design and construction. MDOT SHA, jointly with the Developer, would be responsible for implementing strategies, such as public meetings and community events, with the goal of maintaining an open dialogue with stakeholders.

9.3.8 Comments Concerning Resources Outside Phase 1 South Limits

Despite the reduced limits of build improvements associated with the Preferred Alternative, commenters still included concerns related to resources outside of the limits of build improvements. As described in the SDEIS, the Preferred Alternative was identified after coordination with resource agencies, the public, and stakeholders to respond directly to feedback received on the DEIS to avoid displacements and impacts to significant environmental resources, and to align the NEPA approval with the planned project phased delivery and permitting approach which focused on Phase 1 South only. The Preferred Alternative includes two new, HOT managed lanes on I-495 in each direction from the George Washington Memorial Parkway to west of MD 187 and conversion of the one existing HOV lane in each direction on I-270 to a HOT

managed lane and adding one new HOT managed lane in each direction on I-270 from I-495 to north of I-370 and on the I-270 east and west spurs. The Preferred Alternative includes no action or no improvements at this time on I-495 east of the I-270 spur to MD 5 in Prince George's County. Refer to Figure 1-1 in the FEIS. The potential impacts raised regarding resources outside of Phase 1 South had been identified in the DEIS related to build alternatives that would have spanned the entire study area. Because those resources are located outside the Preferred Alternative limits of build improvements, those impacts have now been completely avoided. Any future proposal for improvements to the remaining parts of I-495 within the study limits, outside of Phase 1 South, would advance separately and would be subject to additional environmental studies, analysis, and collaboration with the public, stakeholders, and agencies.