



SUMMARY

A. Administrative Action

- Environmental Impact Statement
- Environmental Assessment
- Finding of No Significant Impact
- Section 4(f) Evaluation

B. Additional Information

Additional information concerning this project may be obtained by contacting the following individuals:

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C. Description of Action

This Environmental Assessment (EA) presents the results of engineering and environmental studies to improve a section of I-95 in Maryland, from just south of the I-95/I-895(N) split in the northeast side of Baltimore City, to the New Forge Road overpass, just north of the MD 43 Interchange in Baltimore County. The planning study and associated documentation have been performed and completed in accordance with the National Environmental Policy Act (NEPA), and address additional Federal and State laws including: Section 404 of the Clean Water Act, Section 106 of the National Historic Preservation Act of 1966, Title VI of the 1964 Civil Rights Act, the Clean Air Act as amended in 1990, Executive Order (EO) 12898 *Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations*, the Maryland Environmental Policy Act (MEPA), the Uniform Relocation Assistance and Real Property Acquisition Policies Act as amended in 1987, Smart Growth Priority Funding Areas Act of 1997, and the 1992 Maryland Economic Growth, Resource Protection, and Planning Act.

The Section 100: I-95, I-895(N) Split to North of MD 43 project is one of four independent projects identified in the *I-95 Master Plan, I-895 Split(N) to the Delaware State Line* (hereinafter referred to as the I-95 Master Plan), which was adopted by the Maryland Transportation Authority (Authority) in April 2003. The approximately nine-mile long study area is located in Baltimore City and Baltimore County, Maryland, and



extends north along I-95 from south of the I-895(N) split to the New Forge Road overpass (*Figures I-1 and I-2*).

The purpose of the proposed action is to address capacity and safety needs on Section 100 and thereby improve access, mobility, and safety for local, regional, and inter-regional traffic, including passenger, freight, and transit vehicles. Section 100 is currently the most congested section of I-95 in Maryland, north of Baltimore City. The area south of MD 43 operates at Level of Service (LOS) F during the morning and evening rush hours, and is anticipated to operate at LOS E and F during weekend peak periods by 2025. In addition, accident rates are increasing, especially in the vicinity of the urban I-895, I-695, and MD 43 Interchanges, where large volumes of merging, diverging, and weaving movements occur.

D. Description of Alternates

The Authority, in cooperation with the Federal Highway Administration (FHWA) and the Maryland Department of Transportation (MDOT), developed the I-95 Master Plan study approach to comprehensively identify long-range transportation needs and establish clear goals for system maintenance, preservation and enhancement, while ensuring the development of environmentally sensitive and intermodal-friendly solutions for the John F. Kennedy Memorial Highway (JFK).

The Authority adopted the I-95 Master Plan in April 2003. It identified four independent projects including:

- Section 100: I-95, I-895(N) Split to North of MD 43
- Section 200: North of MD 43 to North of MD 22
- Section 300: North of MD 22 to North of MD 222
- Section 400: North of MD 222 to the Delaware State Line

Throughout the I-95 Master Plan process, the Authority coordinated with local, State, and Federal regulatory and resource agencies. This coordination resulted in agency concurrence on the need for four independent projects and their termini, as well as the alternates to be carried forward for each. Section 100 was the first independent project identified in the I-95 Master Plan, to be initiated. Concurring agencies included:

- FHWA,
- Federal Transit Administration¹ (FTA),
- United States Environmental Protection Agency (EPA),
- United States Army Corps of Engineers (USACE),
- United States Fish and Wildlife Service² (USFWS),
- National Marine Fisheries Service (NMF),



- Maryland Department of the Environment (MDE), and
- Maryland Department of Natural Resources (DNR).

- ¹ In February 2002, FTA requested that they be considered a commenting agency.
- ² In February 2002, USFWS informed the Master Plan study team that they could no longer staff the study and should be denoted as having taken no action.

During the I-95 Master Plan studies, six concepts were analyzed for each of the four independent projects. Based on this analysis, Concepts C-2, C-3, and C-4 were dismissed because they were found to be unreasonable or unable to meet the project needs. Concepts C-1, C-5, and C-6 were recommended for further study at that time. The FHWA, EPA, USACE, NMFS, MDE, and DNR concurred upon the range of alternates carried forward into project planning and preliminary design (i.e., No-Build, Concept C-5, and Concept C-6).

Based on the I-95 Master Plan Concepts recommended for further study, preliminary engineering studies were performed, along with environmental analysis/studies. This resulted in the development of preliminary alternates. Detailed traffic, engineering, and environmental studies were then performed, and the preliminary designs were revised to better meet the project needs and minimize environmental impacts. The revised designs represented the Alternates Retained for Detailed Study (ARDS). The following is a summary of the alternates considered in detail during project planning.

1. No-Build Alternate

The No-Build Alternate would include normal maintenance and minor safety improvements. There would be no increase in roadway capacity, and the typical section would remain four lanes in each direction from the I-895(N) split to approximately the New Forge Road overpass. As a result, LOS would continue to degrade, and there would be no reduction in the accident rate.

2. General Purpose Lanes Alternate

The General Purpose Lanes Alternate would include the provision of additional general purpose lanes to accommodate the projected traffic demand. This alternate originally included collector-distributor (C-D) roadways, as per the I-95 Master Plan Concept C-6 from which this alternate was derived. However, studies indicated that the addition of C-D roadways in Section 100 would not improve the alternate's ability to meet the project needs, would not accomplish the intended function, and would increase the footprint, thereby increasing the natural, cultural, and socio-economic impacts of the alternate. Inclusion of C-D lanes was therefore dismissed during the preliminary analysis.

In addition, this alternate originally included two interchange options for the I-895, I-695, and MD 43 Interchanges. Option 2A at the I-895 Interchange would retain I-895 as the



through movement, while Option 2B would make I-95 the through movement. Option 2A for the I-695 Interchange would remove the braided roadways on both I-95 and I-695, while Option 2B would retain the braiding on both roadways. Option 2A at the MD 43 Interchange would provide a single exit point on each approach, while Option 2B would provide a partial cloverleaf configuration.

The interchange options were compared based on the analysis of: 1) operations/LOS; 2) design standards/exceptions; 3) environmental impacts; 4) displacements; 5) major utility involvement; 6) maintenance of traffic; 7) construction costs; and 8) maintenance considerations. For each interchange, the option that best met these criteria was selected for detailed study. The interchange options selected for the General Purpose Lanes Alternate, based on these criteria, included I-95/I-895 Interchange Option 2B, I-95/I-695 Interchange Option 2A, and I-95/MD 43 Interchange Option 2B. This alternate would operate at weekday and weekend LOS E and D, respectively.

Using the selected interchange options, detailed engineering was conducted, and the General Purpose Lanes were refined at the ARDS stage to incorporate six general purpose lanes throughout the corridor.

3. Managed Lanes Alternate

The Managed Lanes Alternate would include two managed lanes per direction along I-95 from I-895 to north of MD 43, plus four additional general purpose lanes. The Managed Lanes Alternate could operate under a single management strategy 24-hours per day, or on a “time-share basis” with different restrictions at different times of day. Management strategies could include restrictions at access locations (ramps), by time of day (peak/off-peak), by vehicle-type (trucks/buses), by type of use (commercial/transit), or by price (variable or fixed). Managed lanes would be designed for flexibility so that management strategies could be modified over time to maximize person-moving capacity, optimize vehicle carrying capacity, and achieve transportation and community goals.

Three management strategies: priced lanes, truck only lanes, and transit only lanes, were evaluated individually and in combination. The truck only and transit only strategies provided opportunities to improve safety, to provide reliable transit service times and to address the “just-in-time” delivery practices of many business sectors. A pricing strategy, which permits trucks and transit vehicles to use the managed lanes, provides opportunities for travel demand management, safety, delivery, revenue and transit benefits. A peak period pricing and off-peak truck only and bus only lane strategy was also considered and a similar mix of potential benefits identified.

Management strategies may be combined and modified to achieve changing regional transportation goals. Maximum flexibility of a managed lane system will best meet changing needs for the safe and efficient movement of people and goods across all transportation modes. One of the keys to the success of the managed lane concept is the ability to alter the operation of the lanes in ways that keep traffic flowing and providing



flexibility, not only in the day-to-day operations of the lanes, but in situations where isolated incidents such as major accident call for the lanes to be open to more or different user groups.

In general, selection of a management strategy will be based on optimized operational efficiency, safety, congestion management and revenue production. The initial strategy will most likely include a form of pricing which is considered during the evaluation of this alternative.

The managed lanes would be separated from the General Purpose Lanes by a physical barrier from the I-95/I-695 Interchange to north of MD 43. South of the I-95/I-695 Interchange, where right of way is constrained, the managed lanes would be separated from the general purpose lanes by a four foot buffer area. Vehicles would access the Managed Lanes directly through dedicated Managed Lanes on-ramps and off-ramps.

This alternate originally included collector-distributor (C-D) roadways, as per the I-95 Master Plan Concept C-5 from which this alternate was derived. However, studies indicated that the addition of C-D roadways in Section 100 would not improve the alternate's ability to meet the project needs, and would increase the footprint, thereby increasing the natural, cultural, and socio-economic impacts of the alternate. Inclusion of C-D lanes was therefore dismissed during the preliminary analyses.

In addition, this alternate originally included two interchange options for the I-895 and MD 43 Interchanges, and three options at the I-695 Interchange. I-95 would be the through movement under Options 3A and 3B at the I-895 Interchange. However, Option 3A would require the managed lanes of I-895 to span over the I-95 general purpose lanes before merging with the I-95 general purpose lanes, while Option 3B would allow the managed lanes of I-895 to stay within the median (no spanning required). Option 3A at the I-695 Interchange would remove the braided mainline of I-95, while Option 3A Modified would remove the braided mainlines on both I-95 and I-695.

In comparison, Option 3B for the I-695 Interchange would simply add managed movements to General Purpose Interchange Option 2B. Options 3A and 3B at the MD 43 Interchange would both provide single-lane ramps for all movements to and from the managed lanes. However, in an effort to minimize impacts to the traffic flows on MD 43, Option 3B would realign the MD 43 lanes to avoid the managed lane intersection, thereby requiring two additional bridge structures over I-95.

The interchange options were compared based on the analysis of: 1) operations/LOS; 2) design standards/exceptions; 3) environmental impacts; 4) displacements; 5) major utility involvement; 6) maintenance of traffic; 7) construction costs; and 8) maintenance considerations. For each interchange, the option that best met these criteria was selected for detailed study. The interchange options selected for the Managed Lanes Alternate, based on these criteria, included I-95/I-895 Interchange Option 3B, I-95/I-695 Interchange Option 3A Modified, and I-95/MD 43 Interchange Option 3A. Using the



selected interchange options, detailed engineering was conducted and the Managed Lanes Alternate was refined at the ARDS stage. The Managed Lanes Alternate retained for detailed study would operate at LOS E to LOS F in the general purpose lanes and at or above LOS D in the managed lanes. The level of service in the general purpose lanes would depend on the management strategy implemented in the adjacent managed lanes. Specifically, the general purpose lanes are expected to operate at LOS E if the managed lanes are tolled, and are expected to operate at LOS F if the managed lanes are operated as non-tolled, truck-only lanes or transit only lanes.

The managed lanes strategies could meet a specific individual or a combination of transportation goals. These achievable benefits include: increasing flexibility, providing choices, optimizing highway efficiency, providing reliable travel times, promoting transit, promoting public safety, reducing incident response times, improving work zone safety, and generating revenue.

On May 4, 2004, the Maryland Secretary of Transportation announced an Express Toll Lanes initiative. Under this initiative, the Secretary has directed the Maryland Department of Transportation and Maryland Transportation Authority to consider implementing Express Toll Lanes on several existing facilities in Maryland, including I-95. The Express Toll Lanes initiative involves the construction of new tolled lanes adjacent to existing free lanes. Tolls would be collected electronically, without the use of toll booths, and would vary by time of day and demand.

The Managed Lanes Alternate, as defined in this document, would allow for a wide range of management strategies to be implemented, including the Express Toll Lanes concept. The General Purpose Lanes Alternate would not allow for tolling and thus is not compatible with the Secretary's policy favoring the establishment of Express Toll Lanes.

E. Summary of Environmental Impacts

Table S-1 provides a summary comparison of impacts associated with the alternates considered for the Section 100 Project. The General Purpose Lanes Alternate would displace six residential structures and seven residential outbuildings, and would require acquisition of approximately 68.5 acres of land. The Managed Lanes Alternate would displace seven residential structures and 12 residential outbuildings, and would require acquisition of approximately 97.7 acres of land. No community facilities would be impacted by either Build Alternate. Three of the 12 outbuilding displacements associated with the Managed Lanes Alternate would be located at the Baltimore County Community College – Essex Campus. Two of these buildings are trailers that appear to be used for storage associated with the maintenance facility. The third building is a house-like structure that does not appear to be in use.



Table S-1. Summary of Impacts

RESOURCE CATEGORY	No-Build Alternate	General Purpose Lanes Alternate	Managed Lanes Alternate
Residential (acre)	0	18.8	29.0
Commercial (acre)	0	11.5	19.1
Other (acre)	0	38.2	49.6
TOTAL ROW (acre)	0	68.5	97.7
Residential Displacements (number)	0	6 residences 7 outbuildings	7 residences 12 outbuildings
Commercial Property Structural Displacements (number)	0	0	0
Wetlands (acre)	0	5.1	6.4
Stream Impacts (linear feet)	0	11,114	15,956
Floodplain (acre)	0	39.4	44.9
Woodland (acre)	0	155.7	210.6
Threatened/Endangered Species Impacts (species)	0	0	0
NR/NRE Historic Sites Impacted (number)	0	0	0
NR/NRE Archaeological Sites Impacted (number)	0	0	1
Noise Impacts (number)	16 NSAs	17 NSAs	17 NSAs
Air Quality Impacts (sites exceeding CO S/NAAQS)	0	0	0
Section 4(f) Resource Impacts (acre)	0	0	0
COST ESTIMATES			
Construction Costs (\$million)	96.9	558.4	824.5

Neither of the Build Alternates would require land acquisition from historic sites or from any publicly owned parks, recreation areas, or wildlife or waterfowl refuges. In addition, neither of the Build Alternates would result in proximity impacts that substantially impair the protected features, activities, or attributes of any such properties. Therefore, approval under Section 4(f) of the U.S. Department of Transportation Act of 1966 would not be required for any of the alternates. In addition, based on air quality analysis completed to date, neither of the Build Alternates would cause or contribute to an exceedance of the State or National Ambient Air Quality Standards. None of the alternates would impact any Federally-listed threatened or endangered species, as no Federally-listed species exist within the study area.



Both of the Build Alternates would require grading for the construction of additional lanes, resulting in minor soil erosion and sedimentation. In addition, several stream crossings would be required, thereby resulting in stream impacts. Stream impacts range from approximately 11,000 for the General Purpose Lanes Alternate to 16,000 linear feet for the Managed Lanes Alternate. The nature of these impacts primarily includes culvert extensions, channel relocations, filling of waters or piping of waters between existing culverts.

Wetlands would also be impacted by both Build Alternates, as would woodlands and floodplains. The majority of wetland impacts that would result from either of the Build Alternates would occur from the widening of I-95 and I-695, and reconfiguration of the I-95/I-695 Interchange. In general, the widening of I-95 and I-695 would result in filling wetland systems (in whole or in part, depending on the system) that have hydrology linked to existing roadway drainage. The primary functions of these wetlands are the sequestration of nutrients, treating toxicants and sediments washed off the roadway and slowing infiltrating runoff into the water table.

Wetlands in the vicinity of the I-695/I-95 Interchange and adjacent to Honeygo Run would be impacted by new, proposed roadway embankments. The wetlands impacted at these locations mainly function in providing floodwater storage from Stemmers Run and Honeygo Run.

The natural and beneficial floodplain values of Moores Run, Redhouse Creek, Stemmers Run, White Marsh Run, Honeygo Run and Lower Gunpowder and its tributaries would be impacted in locations where the Build Alternates would fill and/or narrow the floodway and the 100-year floodplain.

Woodland impacts would range from approximately 155 acres for the General Purpose Lanes Alternate to 210 acres for the Managed Lanes Alternate. Since the Build Alternates would generally involve widening along existing roadway alignment, woodland impacts would be primarily limited to existing forest edge as opposed to more pristine forest interior.

In general, the Managed Lanes Alternate would result in somewhat greater direct impacts to environmental resources. This is due to the additional footprint needed to provide the additional shoulders and barriers. However, managed lanes could provide long term environmental benefits by modifying travel behavior and reducing the need for future highway widening and its associated environmental impacts. By creating a transportation environment that maintains stable travel speeds, managed lanes could also provide short-term environmental benefits such as a reduction in vehicle emissions.



F. Status of Compliance with Regulatory Requirements

Both federal and state laws govern the environmental review requirements applicable to the Section 100 project. This project requires federal approvals from both the FHWA and the USACE. FHWA approval is required for an Interstate access point modification, and USACE approval is required for a Section 404 permit. In addition, this project requires compliance with other applicable federal environmental laws, including NEPA. As previously stated, the FHWA is the lead federal agency for this project, and the USACE is a cooperating agency. Although all agencies involved have independent regulatory obligations, the Section 100 project is being conducted in a manner consistent with the May 2000 Streamlined Guidelines developed by the Mid-Atlantic Transportation and Environmental (MATE) Task Force and consistent with TEA-21's call for improved and earlier coordination among transportation decision-making agencies. As such, the streamlining efforts for this project will allow the federal/state lead agencies (FHWA and the Authority) as well as the cooperating agencies (USACE and the EPA) to satisfy their respective obligations through a single, integrated and streamlined process.

This project will adhere to the following major federal regulatory requirements:

Section 106 of the National Historic Preservation Act, as amended: Section 106 requires that, prior to approval of a project by a federal agency, the agency involved must consider the project's effects on any district, site, building, structure or object that is included or eligible for inclusion in the National Register of Historic Places (NRHP), and give the Advisory Council on Historic Properties an opportunity to comment with regard to the project. Measures to minimize or mitigate adverse effects must be developed in consultation with the State Historic Preservation Officer (SHPO) and other interested parties and may be memorialized in a Memorandum of Agreement (MOA).

Cultural resource studies/surveys for historic architectural resources and archaeological resources for the Section 100 project were conducted in consultation with the Maryland Historical Trust (MHT) and the SHPO, and in accordance with relevant State guidelines (viz. MHT 2000; Shaffer and Cole, 1994). Consulting parties were identified in December 2003, and coordination with those parties to identify historic resource information is ongoing. Additional details regarding the Effect Determination can be found in the *Section 100: I-95, I-895(N) Split to North of MD 43 Historic Context and Determination of Eligibility and Effects Report* which was submitted to the SHPO for concurrence on April 6, 2004 (**Appendix C**).

Studies were performed to identify archaeological resources and the alternates' potential effects on these resources. The findings of these studies were documented in the *Section 100: I-95, I-895(N) Split to North of MD 43 Phase I Archaeological Survey* prepared for this project. Concurrence was requested from the SHPO in a letter submitted April 6, 2004 (**Appendix C**). As of May 10, 2004, concurrence had not been received from the SHPO. Phase I testing within the Area of Potential Effect (APE) identified one



potentially significant archeological resource – the Smith Site (18BA516). A Draft Memorandum of Agreement (MOA) regarding the Smith Site has been prepared and submitted to the SHPO and FHWA for approval (*Appendix D*). The MOA describes steps to be taken to further evaluate the Smith Site (Phase II studies), as well the possible mitigation of effects to the site. Additional studies will be conducted during final design in accordance with the MOA. For further discussion regarding Section 106 resources and potential impacts, see Chapter IV-D.

Section 404 of the Clean Water Act: Section 404 of the Clean Water Act (CWA) prohibits the discharge of dredged or fill material into waters of the United States without a permit. The agency with permitting authority under Section 404 is the USACE. In making permit decisions, the USACE must follow guidelines issued by the EPA under Section 404(b)(1) of the CWA. One key element of the Section 404(b)(1) Guidelines is the requirement that a Section 404 permit can be granted only for the practicable alternative that has the least impact to the aquatic ecosystem, unless that alternative has other significant adverse environmental impacts. This requirement is commonly known as the requirement to select the ‘least environmentally damaging practicable alternative’ (‘LEDPA’).”

The Authority will prepare/procure a Federal/State Joint Permit Application (JPA) upon final selection of an alternate in accordance with Section 404 of the CWA and Maryland State regulations including, Maryland State Programmatic General Permits (MDSPGP-2), USACE individual permits, MDE Water Quality certifications and individual wetland/waterway construction permits. Letters of Authorization (LOA) will also be prepared upon final alternate selection. For further discussion regarding Section 404 compliance and impacts to waters of the United States, see Chapter IV-E, subsection 3.

Air Quality Conformity: Transportation conformity is a requirement of the federal Clean Air Act, meant to insure that air quality concerns are factored into State and local transportation planning and decision-making. The Clean Air Act regulates emissions of six criteria pollutants that pose a danger to human health and the environment. The goal of the Clean Air Act is for nonattainment areas to improve air quality to achieve compliance with the National Ambient Air Quality Standards (NAAQS), within specified time periods, and for attainment and maintenance areas to maintain air quality in accordance with the NAAQS. The vehicle for achieving this objective is the State Implementation Plan (SIP).

The Section 100 study area is located within the Metropolitan Baltimore Intrastate Air Quality Control Region. This region is designated as a severe non-attainment area for ozone. The Authority is currently coordinating with the Baltimore Metropolitan Council (BMC) regarding inclusion of the Section 100 project into the new cycle for the Baltimore Region Transportation Improvement Program (TIP) 2005-2009. Conformity determination for the 2005-2009 TIP is scheduled for July 2004.



Section 100 is currently included in the 2001 Baltimore Regional Transportation Plan for illustrative purposes. It is anticipated that the Section 100 project will be included in the new long-range plan, Transportation 2030, which is scheduled for federal approvals in February 2005. The conformity status of the long-range plan will be determined concurrently with the conformity for the TIP in July 2004. Upon inclusion in the regional TIP, the project will also be incorporated into the statewide SIP. For further discussion regarding air quality conformance, see Chapter IV-G.

Executive Order (EO) No. 12898: EO No. 12898 of 1994: *Federal Actions to Address Environmental Justice in Minority Populations and Low-income Populations*, requires that federal agencies be responsible for reviewing their programs and other activities to determine and prohibit any disproportionately high adverse effects on the human environments in low-income or minority communities. EO 12898 is implemented through several different regulations including the environmental justice orders of the United States Department of Transportation (USDOT) and the Federal Highway Administration (FHWA). The USDOT strategy ensures that the provisions of EO 12898 are integrated into the relevant existing guidelines used in the project planning and public participation processes. FHWA's order requires that specific research and related data collection be conducted to provide information on environmental justice concerns.

Four potential environmental justice communities have been identified within the study area. It has been determined that none of the alternates would disproportionately affect these communities. Coordination and outreach to these communities will continue throughout the planning, design and construction phases of the project. For further discussion regarding Environmental Justice, see Chapter IV-A, subsection 3.

G. Comparison of Alternates

The following discussion is a comparison of the General Purpose Lanes and Managed Lanes Alternates, based on five categories of evaluation criteria including ability to meet purpose and need, environmental impacts, operational efficiency, fiscal responsibility, and regulatory compliance. The Section 100 Alternates have been developed in compliance with NEPA regulations as well as other applicable federal and state regulations.

1. Ability to Meet Purpose and Need

Both build alternates would meet the purpose and need of the project by adding additional highway capacity, thereby addressing travel demand, and improving access, mobility and safety.



a. Congestion

The No-Build Alternate would not provide an increase in capacity. The typical section would remain the same as the current configuration, and no additional lanes would be added. Therefore, this alternate would not reduce congestion.

The General Purpose Lanes Alternate would add two new general purpose lanes in each direction on existing I-95, and would operate at LOS E during weekday peak periods. The additional lanes proposed with this alternate would increase the capacity of I-95 within Section 100; however, all drivers would experience decreasing benefits as traffic volumes grow over time. In addition, the facility would not provide an uncongested option for time-sensitive trips.

In comparison, the Managed Lanes Alternate would provide two managed lanes that would operate at LOS D or better during weekday peak periods, thereby providing consistent travel conditions and maximizing highway throughput. However, the general purpose lanes would be slightly more congested under the Managed Lanes Alternate than they would under the General Purpose Lanes Alternate.

b. Safety

The No-Build Alternate would not involve an increase in capacity. The typical section would remain the same as the current configuration, and no additional lanes would be added. Therefore, this alternate would not improve existing safety conditions, which may deteriorate as congestion levels increase.

The General Purpose Lanes Alternate would consist of six contiguous lanes in each direction. This could generate difficulty for disabled vehicles trying to access the shoulder, and would increase the number of lanes that a driver must traverse to exit the highway. The general purpose lanes would improve safety by eliminating the left side merges and diverges and replacing them with single point right side ramps. This alternate would reduce the level of congestion over the No-Build alternate, thereby assisting with the reduction of congestion-related accidents on this section.

The Managed Lanes Alternate would consist of two contiguous managed lanes and four contiguous general purpose lanes in each direction, with a concrete traffic barrier separating the two roadway types. It is anticipated, that the managed lanes would operate at LOS D or better, thereby allowing for gaps in traffic where vehicles can switch lanes to pass other drivers. By separating the general purpose lanes and providing a maximum of four contiguous lanes, safety would be enhanced through a reduction of lanes to be traversed when entering or exiting, and allowing disabled vehicles to more easily access the shoulder. In addition, the provision of managed lanes with direct access ramps from the intersecting highways could allow for the separation of vehicles by size, and/or reduce the number of conflict points between vehicles, thereby providing opportunities for improved public safety.



2. Environmental Impacts

a. *Natural and Human Environment*

No additional lanes would be added under the No-Build Alternate. Thus, there will be no direct impact to natural environmental features such as wetlands, streams, floodplains, or wildlife habitat. However, noise levels would increase as congestion gradually increases. Increased congestion would also lead to gradual degradation of the quality of life and economic environment in surrounding communities, as travel along I-95 becomes more difficult.

The General Purpose Lanes Alternate has a slightly smaller footprint than the Managed Lanes Alternate, and thus would have a proportionally smaller direct impact on environmental features.

The Managed Lanes Alternate could provide long term environmental benefits by modifying travel behavior and reducing the need for future highway widening and its associated environmental impacts. By creating a transportation environment that maintains stable travel speeds, managed lanes could also provide short-term environmental benefits such as a reduction in vehicle emissions. It is anticipated that the Managed Lanes Alternate would produce a lower rate of residential development outside of the Priority Funding Areas of Baltimore and Harford Counties than the General Purpose Lanes Alternate through 2025. Neither build alternate would cause a change the currently designated geographical pattern of residential development in the region.

A detailed comparison of the natural and human environmental impacts are included in Chapter IV: *Environmental Consequences*.

b. *Land Use Impacts*

The No-Build Alternate will have no effect on land use within the study area. Both Build Alternates will directly result in minor amounts of residential, commercial, forested, and open space land to transportation use. The General Purpose Lanes Alternate would result in less direct conversion of land use than the Managed Lane Alternate.

The build alternates would result in increased rate of conversion to residential land use in Baltimore and Harford Counties. The Managed Lanes Alternate would generate lower rate of conversion to residential land use than the General Purpose Lanes Alternate.

A detailed comparison of the natural and human environmental impacts is included in Chapter IV: *Environmental Consequence*



3. Operational Efficiency

a. Incident Management

The No-Build Alternate would not reduce congestion or increase capacity. The highway would be maintained but no significant improvements would be provided therefore, incident management would not be improved.

The General Purpose Lanes Alternate would increase capacity and reduce congestion, providing LOS E during the weekday peak period. Shoulder width would be increased to fourteen feet providing improved access and a wider staging area for emergency responders. Overall, incident management on the highway would be improved by the General Purpose Alternate.

The Managed Lanes Alternate would offer the greatest benefit for incident management. The managed lanes within the median would operate at LOS D. Additional (4) and wider fourteen foot shoulders would be provided with the Managed Lane Alternate, providing improved access and a wider staging area for emergency responders. In addition, physical separation of the general purpose and managed lanes would provide adjacent detour routing and/or access for emergency services. The separated roadways would also allow for the maintenance of traffic flow during incidents.

b. Facility Maintenance

The No-Build Alternate would not improve congestion or capacity. The typical section would not be altered and no lanes would be added. Based on this assessment, facility maintenance would not be improved by the No-Build Alternate.

The General Purpose Lanes Alternate would include the addition of two new general purpose lanes, thereby providing additional lanes for redirection of traffic during maintenance activities.

The Managed Lanes Alternate would provide the best conditions for facility maintenance, because off-peak closures of the managed or general purpose roadways could reduce conflicts between motorists and maintenance or construction activities.

c. Enforcement

The No-Build Alternate will provide decreasing opportunities for enforcement activities. As congestion increases, the ability of police units to pull motorists over to the highway shoulder decreases. The General Purpose Lanes Alternate will reduce congestion, thereby increasing opportunities for safer roadside activities. The Managed Lanes Alternate, with a maximum separation of 2 lanes from an available shoulder, will facilitate roadside patrols and enforcement.



d. Intermodal Access

Section 100 provides access to the Port of Baltimore, Baltimore Washington International (BWI), and Martin State Airports and Amtrak rail service. Section 100 is also used for access to public transit facilities such as park-and-ride lots and bus services. In order to provide dependable intermodal connectivity, it is important that highway travel times and thus bus service times remain fairly consistent, and that those times be perceived as reasonable by users.

The No-Build Alternate would not involve an increase in capacity. The typical section would remain the same as the current configuration. Under this alternate, bus transit would not experience any substantial benefits, as travel times would increase with congestion increases over time.

The General Purpose Lanes Alternate would involve the addition of lanes as necessary to accommodate the projected traffic volumes. This alternate would have a moderate effect on bus transit in the Section 100 corridor. Although the capacity of I-95 would increase in Section 100, drivers would experience decreasing benefits as traffic volumes grow over time.

The Managed Lanes Alternate would involve the addition of two managed lanes per direction between I-895 and north of MD 43. This alternate would also include four general purpose lanes to accommodate projected traffic volumes. Bus transit could benefit from the implementation of managed lanes. Managed lane strategies preserve a portion of the highway capacity for priority needs by providing opportunities for eligible vehicles, such as buses, to maintain generally free-flow travel speeds on designated lanes. By utilizing the managed lanes, buses could benefit from the higher levels of service that could be provided in the managed lanes. Managed lanes could improve the attractiveness of transit services by providing reliable and predictable transit service times. Therefore, by implementing managed lanes, bus ridership would likely increase. Access to and from the managed lanes, at interchanges where transit service hubs are planned, are accommodated in the design of the Managed Lanes Alternate.

Based on this assessment, the Managed Lanes Alternate would best provide for intermodal access because it is anticipated that the managed lanes would operate at LOS D or better, thereby providing faster, more consistent travel conditions as compared to the General Purpose Lanes Alternate, which would operate at LOS E during weekday peak periods.

4. Fiscal Responsibility

The term No-Build is often misleading. It does not mean that there would be no cost associated with this alternate. Rather, it means that no funds would be expended to increase the capacity of the roadway. There would still remain significant costs associated with maintaining the facility. This would include activities such as roadway



resurfacing, bridge replacement, signing, lighting, pavement markings, etc. The estimated cost for the No-Build Alternate, major maintenance activities, is \$96.9M. The General Purpose Lanes Alternate preliminary cost estimate is approximately \$558.5M while the Managed Lanes Alternate preliminary cost estimate is approximately \$824.6M. These preliminary costs do not include right-of-way or mitigation costs. ROW and mitigation costs will be determined at a later stage, however, it is not anticipated that the overall cost for ROW and mitigation will significantly impact the cost of the alternates.

If pricing strategies would be implemented under the Managed Lanes Alternate, the revenues would help offset the cost to construct and monitor the facility.

H. Summary

Generally, the No-Build Alternate would not meet the projects purpose and need, would result in increasing congestion and noise levels and require a \$96.9M investment in major maintenance activities.

Generally, the General Purpose Lanes Alternate would meet the purpose and need, would have less direct impacts on environmental resources, and would require an investment of \$558.5M.

Generally, the Managed Lanes Alternate would meet the purpose and need, would potentially result in lesser cumulative impacts on environmental resources, and require an investment of \$824.6M. In comparison, to the General Purpose Lanes Alternate, the Managed Lanes Alternate may result in a lower rate of residential development outside of the Priority Funding Area, and a greater safety, enforcement, and incident management benefits.

I. Federal Actions

Each of the Build alternatives would require approval of both FHWA and the USACE. FHWA approval would be required for modifications to existing Interstate access points. FHWA approval also would be needed to authorize implementation of tolls as part of a managed lane option. USACE approval would be required for a permit for impacts to waters of the United States under Section 404 of the Clean Water Act.”