Finding of No Significant Impact

Section 100
John F. Kennedy Memorial Highway
(I-95, I-895(N) Split to North of MD 43)

Final

July 8, 2005

Prepared by:
Maryland Transportation Authority
for U.S. Department of Transportation/
Federal Highway Administration

Federal Highway Administration
Maryland Division

Finding of No Significant Impact

Section 100: I-95, I-895(N) Split to North of MD 43
Baltimore City and Baltimore County, Maryland

U.S. Department of Transportation
Federal Highway Administration
with U.S. Environmental Protection Agency
and the U.S. Army Corps of Engineers as cooperating agencies

The FHWA has determined that the Maryland Transportation Authority's Preferred Alternate – Alternate 3: Managed Lanes (with Express Toll Lanes) will have no significant impact on the environment. The Managed Lanes Alternate involves the addition of two electronically-tolled managed lanes in each direction along I-95 Section 100 from the I-95/I-895(N) split to just north of the I-95/MD 43 Interchange.

This Finding of No Significant Impact (FONSI) is based on the Environmental Assessment (EA) that identified and assessed the need and environmental impacts associated with the Section 100 project, as well as appropriate mitigation measures. The EA as well as the information presented in this FONSI, provide sufficient evidence and analysis for determining that an Environmental Impact Statement (EIS) is not required. The FHWA and the Authority take full responsibility for the accuracy, scope, and content of the EA and this FONSI.

7/20/05
FEDERAL HIGHWAY ADMINISTRATION — Date
Nelson Castellanos, Division Administrator, Maryland Division

7-12-05
MARYLAND TRANSPORTATION AUTHORITY — Date
Trent Kittleman, Executive Secretary

Section 100: I-95, I-895(N) Split to North of MD 43
Baltimore City and Baltimore County, Maryland

Finding of No Significant Impact

Prepared by:

Maryland Transportation Authority
300 Authority Drive
Baltimore, MD 21222

For:

Federal Highway Administration
10 South Howard Street
Suite 2450
Baltimore, MD 21201

In cooperation
with:

U.S. Environmental Protection Agency
and
the U.S. Army Corps of Engineers

July 8, 2005

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I. INTRODUCTION

The Section 100: I-95, I-895(N) Split to North of MD 43 (hereinafter referred to as Section 100) 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 Section 100 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.

The Authority has followed "Maryland's Streamlined Environmental and Regulatory Process" for guidance to achieve the timely and efficient identification, evaluation and resolution of environmental and regulatory issues related to the Section 100 project. On May 28, 2004, the Federal Highway Administration (FHWA) and the Maryland Transportation Authority issued the Environmental Assessment (EA) document for the Section 100 project. On June 29, 2004, a Public Hearing was held to present the findings in the EA and to receive public comment. On September 21, 2004, the Authority selected the Managed Lanes Alternate (Alternate 3) as its Preferred Alternate. On January 17, 2005, the Preferred Alternate Conceptual Mitigation (PACM) Package was submitted to the FHWA, the U.S. Army Corps of Engineers (USACE) and the U.S. Environmental Protection Agency (USEPA). Following issuance of the PACM, MdTA selected Express Toll Lanes (ETLs) as the management strategy for Section 100 and requested FHWA approval of the Managed Lanes Alternate with an ETL management strategy (hereafter referred to as managed lanes (with ETLs)).

This Finding of No Significant Impact (FONSI) has been prepared in accordance with the National Environmental Policy Act (NEPA) to document and support FHWA's determination that the Preferred Alternate would not have a significant effect on the human and natural environment. Based upon this determination, an environmental impact statement is not required for this project. In addition, the FONSI describes the process that FHWA and the Authority undertook to select Alternate 3- Managed Lanes (with ETLs) as the Preferred Alternate. The FONSI is based on the detailed analysis of environmental impacts documented in the EA, as well as the other reports and studies, agency correspondence, and public input that were prepared or received during the NEPA study.

II. SUMMARY OF ACTIONS AND RECOMMENDATIONS

A. Project Location

The study area for Section 100 is approximately nine miles long, extending north along I-95 from just south of the I-895(N) split on the northeast side of Baltimore City, to the New Forge Road overpass in Baltimore County, just north of the MD 43 interchange (**Figure II-1**). The study area includes the I-895(N), I-695, and MD 43 interchanges, as well as the mainline of I-95, and extends approximately 0.25 miles out from the edge of the existing right-of-way (**Figure II-2**).

B. Purpose and Need

1. Identification in Master Plan

The Authority, in cooperation with the FHWA and the Maryland Department of Transportation (MDOT), developed the I-95 Master Plan study to comprehensively identify long-range transportation needs that establish clear goals for system maintenance, preservation and enhancement, and ensure 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

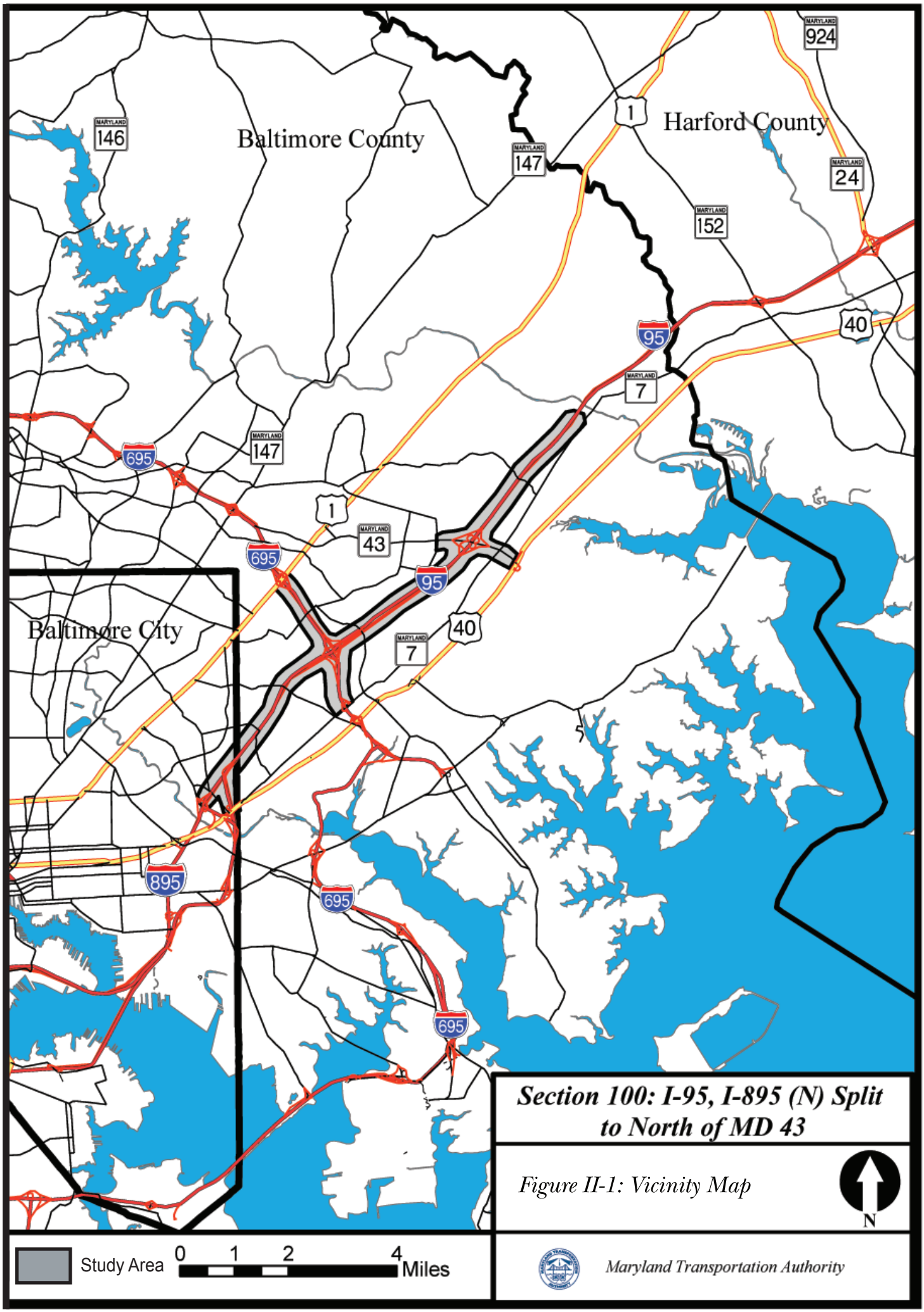
Throughout the I-95 Master Plan process, the Authority coordinated with local, State, and Federal regulatory and resource agencies. This coordination resulted in agency concurrence on the need for four independent projects and their termini, consistent with 23 CFR 771.111(f), as well as the concepts to be carried forward for each. Concurring agencies included the FHWA, EPA, USACE, NMFS, MDE, and DNR. The Master Plan was presented to the public at a series of three public workshops on June 5, 2001, June 21, 2001 and November 19, 2002. Section 100 is the first of the independent projects identified in the I-95 Master Plan to be initiated.

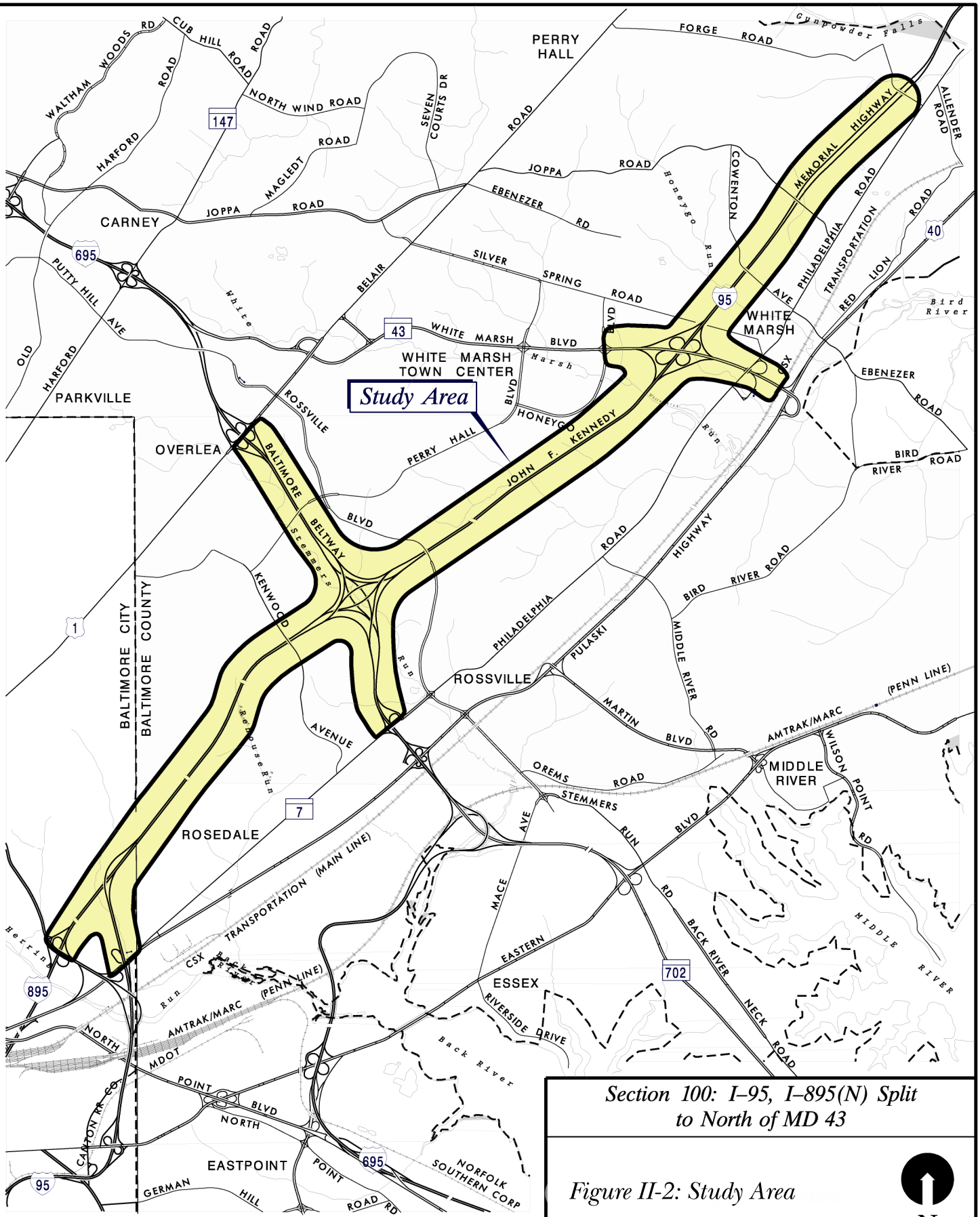
2. Purpose of the Project

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.

3. Need for the Project

The proposed action is intended to address the following capacity and safety needs on Section 100:


Baltimore County
Harford County
Baltimore City
MARYLAND 146
MARYLAND 147
MARYLAND 152
MARYLAND 24
MARYLAND 924
MARYLAND 7
MARYLAND 43
1
40
95
695
895
Section 100: I-95, I-895 (N) Split to North of MD 43
Figure II-1: Vicinity Map
N
Study Area
0 1 2 4 Miles
Maryland Transportation Authority



Section 100: I–95, I–895(N) Split to North of MD 43

Figure II-2: Study Area

N

Study Area

1 Mile 0.5 Mile 0 1 Mile

Maryland Transportation Authority

Capacity
Section 100 is the most congested section of I-95 in Maryland north of Baltimore City. Currently, Section 100 south of MD 43 operates at LOS F during the morning and evening rush hours. If capacity needs are not addressed, congestion is expected to increase by the horizon year of 2025. By 2025, Section 100 south of MD 43 is also expected to operate at LOS E and F during weekend peak periods. Unchecked, increased congestion levels would extend the existing peak hour into a peak period of several hours in duration and increase the level of diversion to alternate routes, such as the community-oriented arterials US 1, US 40, and MD 7.

Safety
The accident rate on Section 100 is currently lower than the statewide average for comparable urban interstates within Maryland. However, the total number of accidents on Section 100 is 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. At some locations, left-hand exit and entrance treatments, limited auxiliary lane lengths, and restricted sight distances may increase the potential for accidents. The majority of the reported accidents in Section 100 are of the types normally identified as congestion-related, such as rear-end and sideswipe. If the anticipated congestion levels in Section 100 are not addressed, an increase in the number and severity of congestion-related accidents would likely occur.

The Purpose and Need section in the EA provides additional information about the capacity and safety issues related to Section 100.

C. Alternates Retained for Detailed Study (ARDS)

Based upon the detailed analyses used to evaluate the alternates and the input gathered from the Focus Group and the November 18, 2003 Public Workshop, three alternates were recommended for detailed study in the EA. The following summarizes each of the ARDS as evaluated in the May 2004 EA.

1. Alternate 1 - No-Build

The No-Build Alternate would be restricted to normal maintenance and safety improvements. There would be no increase in roadway capacity, and I-95 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. This alternate was carried as a baseline for comparison.

2. Alternate 2 - General Purpose Lanes

The General Purpose Lanes Alternate involved additional general purpose lanes to accommodate the projected traffic demand. In order to reach a peak hour/peak direction LOS E through the design year, this alternate consisted of the following lane configurations:

- Four lanes in each direction on I-95 from approximately ¼ mile south of the I-895 interchange to the point where I-95 merges with I-895,
- Six lanes in each direction between the I-895(N) split and MD 43,
- North of MD 43, the roadway would transition from six lanes in each direction to the existing four lanes in each direction,

The Alternates Considered section in the EA discussed the configurations considered for the I-895, I-695, and MD 43 interchanges for the General Purpose Lanes Alternate.

3. Alternate 3 - Managed Lanes

As described in the EA, the Managed Lanes Alternate involved two managed lanes in each direction from I-895 to north of MD 43, plus additional general purpose lanes (**Appendix A**). The managed lanes would be separated from the general purpose lanes by a physical barrier for the entire length of the project. Vehicles would access the managed lanes directly through dedicated managed lanes on-ramps and off-ramps located at the existing interchanges.

Additional improvements associated with the Managed Lanes Alternate included:

- Four general purpose lanes in each direction of I-95 from approximately ¼ mile south of the I-895 interchange to the point where I-95 merges with I-895,
- Two managed lanes and four general purpose lanes in each direction between the I-895(N) split and MD 43,
- North of MD 43, the roadway would transition from the six-lane section (two-lane managed and four-lane general purpose) in each direction into the existing four general purpose lanes in each direction)

The Alternates Considered section in the EA discussed the configurations considered for the I-895, I-695, and MD 43 interchanges for the Managed Lanes Alternate, and described the different management strategies that the Authority considered and that could be implemented in the managed lanes. The EA did not specify a management strategy for the managed lanes. Instead, the traffic modeling for this alternate evaluated three different scenarios for the managed lanes: "truck only," "transit only," and "priced strategies."

In addition, the Interstate Access Point Approval (IAPA) Request report contains more information about the current interchange configurations. Specifically, the design of the I-695 interchange has been modified since the EA so that it now consists of four total levels rather than five. In the new configuration, the mainline of I-695 is on the bottom level, mainline I-95 is on the second level, and ramps occupy the two top levels. The change in design for I-695 is consistent with the ramp movements described in the EA, and substantially reduces the overall height of the proposed interchange, without increasing the footprint.

D. Preferred Alternate

Three alternates were carried forward for detailed study: Alternate 1 – No Build; Alternate 2 – General Purpose Lanes; and Alternate 3 – Managed Lanes. After performing engineering and environmental analysis for each of these alternates and considering public and agency input, the Authority selected Alternate 3 – Managed Lanes as its Preferred Alternate. The Authority considered priced and non-priced management strategies for the Managed Lanes Alternate. Following analysis of multiple variations of each type of management strategy, the Authority selected a priced management strategy as the management strategy for the Managed Lanes Alternate.

Alternate 1 (No Build) was not selected because it does not satisfy the purpose and need of the project. Minor improvements for normal traffic maintenance and safety operations proposed under Alternate 1 would not improve the safety or capacity along Section 100.

Having eliminated the No Build Alternate, the Authority compared the General Purpose Lanes Alternate and the Managed Lanes Alternate based upon the following evaluation criteria: (i) ability to meet Purpose and Need, (ii) environmental impacts, (iii) operational efficiency, and (iv) cost. The overall results of this comparison demonstrate that the Managed Lanes Alternate (with ETLs) would more effectively meet these criteria, as explained below.

1. Ability to Meet Purpose and Need

a. Congestion

Both the General Purpose Lanes Alternate and the Managed Lanes Alternate (with ETLs) would provide better congestion relief than the No Build Alternate, by adding new capacity to Section 100. The Managed Lanes Alternate (with ETLs) also preserves a portion of the new capacity, the managed lanes, for priority needs by providing opportunities for vehicles that use the managed lanes to maintain generally free flow speeds. Managed lanes could establish stable travel speeds and vehicle spacing, thus maximizing vehicle throughput on the highway.

The General Purpose Lanes Alternate would operate at a weekday peak of LOS E. Although this alternate would provide acceptable overall traffic operations for weekday and weekend peak periods, it limits the ability to manage the facility. The six continuous travel lanes with no separation between the lanes would make it very difficult to implement a travel demand management program especially from an enforcement standpoint. Overtime, the General Purpose Lanes Alternate would experience increasing congestion levels on all lanes of travel since there would be limited opportunities for travel demand management programs. Additionally, there would be limited incentive for transit or carpooling.

The Managed Lanes Alternate (with ETLs) provides the opportunity to implement a travel demand management system that would in turn provide superior service for motorists that use the managed lanes. With a priced management strategy in place, the managed lanes are anticipated to operate at or above LOS D during weekday peak periods. This free flow of traffic will better provide for the safe and efficient movement of people and goods across all transportation modes. One of the keys to the success of the managed lanes concept is the ability to alter the manner in which the lanes are priced in ways that keep traffic flowing. The managed lanes also provide flexibility for the lanes to be used in situations where isolated incidents such as major accidents or other events block the movement of traffic.

Under the Managed Lanes Alternate, the operation of the managed lanes would influence the LOS for the general purpose lanes by affecting the number of trips made during a non-peak period of travel and/or a change in travel modes. By 2025, the general purpose lanes of the Managed Lanes Alternate would operate at LOS E or worse during AM peak periods along southbound I-95 and PM peak periods along northbound I-95 (**Table II-1**). The general purpose lanes would be somewhat more congested under the Managed Lanes Alternate than they would be under the General Purpose Lanes Alternate. However, under the Managed Lanes Alternate,

the users of the general purpose lanes would have the option of using the less congested managed lanes for time-sensitive trips.

Table II-1. Weekday 2025 LOS Summary

Alternate	Roadway Section		AM Peak Period		PM Peak Period	
			NB	SB	NB	SB
No-Build	I-895 to I-695		D	F	F	D
	I-695 to MD 43		D	F	F	E
General Purpose Lanes	I-895 to I-695		B	E	E	C
	I-695 to MD 43		C	E	E	C
Managed Lanes	I-895 to I-695	ML	A	D	D	A
	I-895 to I-695	GP	C	E	E	D
	I-695 to MD 43	ML	A	C	D	A
	I-695 to MD 43	GP	C	E	E	D

b. Safety

The Managed Lanes Alternate would have fewer contiguous lanes than the General Purpose Lanes Alternate. The Managed Lanes Alternate would have four contiguous general purpose lanes and two contiguous managed lanes. The General Purpose Lanes Alternate would have six contiguous lanes. With fewer contiguous lanes, the Managed Lanes Alternate would decrease the number of lanes that a driver would have to traverse and limit the amount of weaving when exiting and entering the roadway. The six contiguous lanes provided in the General Purpose Lanes Alternate would increase the number of lanes a driver must cross to exit the roadway. Also, the distance a disabled vehicle would have to travel to the shoulder would increase. Therefore, it is expected that the number of accidents related to these types of movements would be less with the Managed Lanes Alternate (with ETLs) as compared to the General Purpose Lanes Alternate.

2. Environmental Impacts

a. Natural and Human Environment

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 the natural and human environment. Notwithstanding this slight difference in footprint, the Managed Lanes Alternate could provide environmental benefits that would not be provided by the General Purpose Lanes Alternate. A long-term benefit of the Managed Lanes Alternate is that appropriate management of the managed lanes could cause motorists to modify travel behavior, thus reducing the need for future highway widening and its associated environmental impacts. The Managed Lanes Alternate would cause short-term environmental benefits as well, such as reducing vehicle emissions by creating a managed transportation facility that maintains stable travel speeds.

b. Land Use Impacts

In 2004, the Maryland Department of Planning (MDP) employed a land use analysis methodology to estimate the impact of the General Purpose Lanes Alternate and the Managed Lanes Alternate on household location in 2025. This pilot methodology, which was specifically

developed for the Section 100 project, provides a preliminary analysis of potential residential development rates for the study area. This analysis assumed the use of pricing as the management strategy for the managed lanes.

The findings of MDP's transportation and land use analysis indicate that both the General Purpose Lanes and Managed Lanes Alternates would contribute to land use/residential development rates in Harford County and eastern Baltimore County. As compared to the General Purpose Lanes Alternate, the Managed Lanes Alternate would generally have a slower rate of residential development in both counties.

By 2025, the General Purpose Lanes Alternate would result in more residential development in areas outside of Priority Funding Areas along the I-95, MD 543, and MD 152 corridors than the Managed Lanes Alternate. The General Purpose Lanes Alternate would also result in a faster rate of development in rural areas of northern and eastern Harford County. It is anticipated that the Managed Lanes Alternate would produce a lower rate of residential development in non-Priority Funding Areas of Baltimore and Harford Counties than the General Purpose Lanes Alternate through 2025, without changing the currently designated geographical pattern of residential development in the region.

The MDP concluded that the modeled differences in development rates can be attributed to the fact that as the apparent cost and time of travel increase, demand for residential development decreases. Compared to the General Purpose Lanes Alternate, the Managed Lane Alternate would generate an added cost of tolls or/and a slightly higher congestion delay in the general purpose lanes, resulting in impedance to travelers and decreased residential development pressure.

3. Operational Efficiency

a. Incident Management

The Managed Lanes Alternate (with ETLs) offers a greater benefit than the General Purpose Lanes Alternate for incident management. First, physical separation of the general purpose and managed lanes of the Managed Lanes Alternate would provide adjacent detour routing and/or access for emergency services during traffic-related and other incidents. In addition, the managed lanes would provide emergency responders with unimpeded access throughout Section 100, because the managed lanes would operate at LOS D or better. Furthermore, by having a maximum of four contiguous lanes (general purpose) and additional shoulders associated with the managed lanes, additional areas would be available for crews to work and safely access necessary sites. The General Purpose Lanes Alternate would not provide these incident management benefits.

b. Facility Maintenance

The Managed Lanes Alternate (with ETLs) is preferable to the General Purpose Lanes Alternate in terms of facility maintenance. The Managed Lanes Alternate would allow vehicles to avoid areas where maintenance activities are taking place by using lanes that are separated from the maintenance activities. Because the General Purpose Lanes Alternate does not include such separation, it would not be possible for vehicles to use a separated roadway during maintenance activities. The Managed Lanes Alternate provides the additional benefits of only requiring

minimal efforts and materials to redirect traffic, and enhancing worker safety due to the concrete barrier that would separate workers from the traffic.

c. Intermodal Access

Section 100 provides access to the Port of Baltimore, Baltimore Washington International (BWI) and Martin State Airports, Amtrak rail service, and the local transit system. In order to provide dependable intermodal connectivity, it is important that highway travel times remain fairly consistent, and that those times be perceived as reasonable by users. Based upon the flexibility afforded by the Managed Lanes Alternate, a facility operator has the ability to consistently manage traffic volumes to provide travel speeds and travel times with a high degree of certainty. 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 and which do not include any mechanisms to assure consistent travel times – and would thus provide a much lower level of predictability and reliability for freight shippers and transit providers. The more predictable travel times associated with the Managed Lanes Alternate would create advantages for transport fleets with schedules to meet, such as those engaged in transit services or commercial "just in time" freight delivery services.

d. Facilitation of Transit Service

While the General Purpose Lanes Alternate would involve the addition of lanes to accommodate projected traffic volumes, this alternate would only have a moderate effect on bus transit in the Section 100 corridor. This is because all travelers, including transit services, would experience decreasing benefits as traffic volumes grow over time. The General Purpose Lanes Alternate would not provide a way for transit vehicles to avoid increasing congestion. Thus, transit vehicles would experience the same increase in the level of traffic congestion as general traffic, and there would likely be no incentives for bus usage due to a lack of variation in travel time from non-transit vehicles.

Bus transit could benefit from the implementation and use of managed lanes. Managed lane strategies preserve a portion of the highway capacity for priority needs by providing opportunities for vehicles to maintain generally free-flow travel speeds on designated lanes. Using the managed lanes, buses would benefit from the higher level of service that would be provided in these managed lanes. This would improve the attractiveness of transit services by providing reliable and predictable transit service times. Therefore, by implementing managed lanes, bus ridership would likely increase. As documented in the EA, preliminary indications are that a 6% increase in ridership would occur.

4. Cost

Both the General Purpose Lanes Alternate and the Managed Lanes Alternate would be funded by the Authority from toll revenues, which are drawn from I-95 and other facilities owned by the Authority. Sufficient funds have been budgeted by the Authority to cover the cost of construction for either of these build alternates.

The preliminary cost estimate for the General Purpose Lanes Alternate is approximately $558.5M, while the preliminary cost estimate for the Managed Lanes Alternate is approximately $824.6M. These preliminary costs do not include right-of-way (ROW) or mitigation costs. The

estimated cost for the General Purpose Lanes Alternate's additional ROW (i.e. seven displacements and 140 parcels) and mitigation is approximately $12M. The estimated cost for the Managed Lanes Alternate's additional ROW (i.e. seven displacements and 210 parcels) and mitigation is approximately $22M.

While the Managed Lanes Alternate has a higher cost, it also will provide an additional revenue source – the tolls collected from the managed lanes. The revenues from these priced lanes would help offset the cost to construct and manage the facility.

E. Management Strategy for the Preferred Alternate

The Authority has determined that the Managed Lanes Alternate will be managed as a priced facility utilizing Express Toll Lanes (ETLs) with variable or dynamic pricing. Following the NEPA process, the Authority will set the specific pricing method and toll rates for the facility. The Authority's analysis supporting the selection of a priced management strategy is included as Appendix B.

1. Analysis of Management Strategies in the EA.

The EA evaluated a range of management strategies for Section 100. The strategies, which included truck only, transit only and priced, were representative examples of the types of management strategies that could be used on Section 100.

On January 19, 2005, the Authority circulated the PACM to the resource agencies for concurrence. The PACM identified the Managed Lanes Alternate as the preferred alternate for the Section 100 project. While the PACM identified a preferred alternate, it did not identify the management strategy that would be used for the managed lanes. Thus, as in the EA, the traffic analysis of the Managed Lanes Alternate in the PACM consisted of a range or levels of service based upon the various management strategies.

2. The Authority's Selection of a Management Strategy

Following issuance of the PACM, the Authority undertook additional analysis of the potential management strategies (Appendix B). This analysis assessed the advantages and disadvantages of the management strategies considered in the EA and PACM. Based upon this analysis, on October 2004, the Authority selected the priced management strategy utilizing ETLs with variable or dynamic pricing as the management strategy that it intended to use on the managed lanes of the Section 100 project. Based upon the management strategy analysis, the Authority also concluded that utilizing ETLs as the management strategy would not result in impacts that are different than the impacts from managed lanes that were studied and documented in the EA. On March 10, 2005, the Authority consulted with FHWA on its management strategy selection, and requested that FHWA approve the Managed Lanes Alternate with a priced management strategy utilizing ETLs in this FONSI.

In determining the best management strategy for the Managed Lanes, the Authority considered the following factors: (1) optimized operational efficiency, (2) safety, (3) congestion management, and (4) revenue production. The Authority determined that the use of ETLs with a variable or dynamic pricing method would allow for a more effective use of the facility. The general purpose lanes would operate at a level of service 'E' for the most part while the managed lanes will operate at a level of service 'D' or better. The non-pricing management strategies

(truck only and transit only lanes) during the peak periods cause the general purpose lanes to operate at level of service 'F'. The two managed lanes would operate at level of service 'A' or 'B', thereby not effectively using the entire facility. While these non-priced management strategies have not been selected, the Authority has determined that transit vehicles would be permitted in the managed lanes.

The two pricing management strategies considered by the Authority were variable pricing and dynamic pricing. Variable pricing allows toll rates to be set based upon identified conditions such as time of day or days of the week. Under variable pricing, toll rates would likely be higher in the peak direction during the peak hours (i.e. AM southbound and PM northbound) than during other periods of the week. Toll rates could also take into account peak driving times such as summer and holiday weekends. Dynamic pricing allows the toll rate to adjust quickly – in a predefined number of minutes – as conditions in the general purpose lanes reach an identified level of congestion. This allows for an immediate increase in rates as congestion increases in the general purpose lanes. The dynamic pricing method of ETL management is the most costly initially and to maintain, but offers the opportunity to maximize revenues and maintain LOS D or better in the managed lanes.

III. ENVIRONMENTAL CONSEQUENCES OF THE PREFERRED ALTERNATE

A detailed analysis of the Preferred Alternate was conducted to determine potential effects to socioeconomic, cultural and natural environmental resources (**Table III-1**). This analysis is based upon the Preferred Alternative as it is now defined and which FHWA is approving with this FONSI. Thus, this analysis is based upon the Managed Lanes Alternate with an ETL management strategy. Further, this document reflects changes in wetland determinations and limits of disturbance of floodplains and woodlands that have occurred since the EA.

The following is a summary of affects associated with the Preferred Alternate.

Table III-1. Summary of Impacts

RESOURCE CATEGORY	Managed Lanes Alternate (Preferred Alternate)	
	EA Impacts	FONSI Impacts
Residential (acres)	29.0	29.0
Commercial (acres)	19.1	19.1
Other (acres)	49.6	49.6
TOTAL ROW (acres)	97.7	97.7
Residential Displacements (number)	7 residences 12 outbuildings	7 residences 12 outbuildings
Commercial Property Structural Displacements (number)	0	1
Permanent Wetlands Impacts (acres)	5.1	3.51[1]
Temporary Wetland Impacts (square feet)	N/A	1.36[2]
Permanent Stream Impacts (linear feet)	15,956	12,998[1]
Temporary Stream Impacts (linear feet)	N/A	5,024[2]
Floodplain (acres)	44.9	44.5[3]
Woodland (acres)	210.6	141.06[3]
Threatened/Endangered Species Impacts (species)	0	0
NR/NRE Historic Sites Impacted (number)	0	0
NR/NRE Archaeological Sites Impacted (number)	1	0[4]
Noise Impacts (number)	17 NSAs	17 NSAs
Air Quality Impacts (sites exceeding CO S/NAAQS)	0	0
Section 4(f) Resource Use (number)	0	0

[1]Since the Environmental Assessment was issued, a Jurisdictional Determination has been completed by the USACE and MDE. Some of the wetland and streams impacts presented in the EA have been determined non-jurisdictional. Minimization and avoidance measures have been added to the design of the Preferred Alternate since the EA was issued. Also, the EA impacts have been separated into permanent and temporary impacts for the FONSI.
[2] All temporary impacts were calculated using the Limits of Disturbance (LOD). The LOD includes 25 feet from the edge of the cut/fill line.
[3] The decrease in impacts is a result of a reduction in the LOD, which changed since the EA because of design modifications.
[4]MHT determined the Smith Site ineligible for the National Register of Historic Places (NRHP).

A. Socioeconomic Resources

1. Land Use

Existing land use along the Section 100 study area is dominated by residential uses from the I-95/I-895 (N) Split to the I-695 interchange. North of the I-695 interchange, the study area is dominated by a mix of forested, residential, and commercial uses, with some sparsely scattered areas of open space and industrial uses.

The Preferred Alternate would result in the direct conversion of only minor amounts of residential, commercial, forested, and open space land to transportation use. These minor land use impacts would be located throughout the Section 100 corridor, adjacent to the existing highway. The extent, pace, and location of development growth along I-95, including Section 100, would be influenced and controlled by State and County land development policies and plans. Section 100 would accommodate future planned growth within the study area; however, future growth is not dependent on proposed improvements to Section 100. The alternate would affect local residential development rates as documented in the EA. Section 100 is currently, and would remain, a fully access-controlled highway under the Preferred Alternate.

2. Right-of-Way and Displacements

The majority of the improvements associated with the Preferred Alternate would be located within the Authority's existing right-of-way (ROW); however, approximately 97.7 acres of new ROW would be required. Seven residences and twelve residential outbuildings would be displaced. Most of the residential outbuildings have been abandoned or are not in use.

In accordance with the provisions of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, all families, individuals, and businesses displaced by the project would be treated fairly, consistently, and equitably so that they will not suffer disproportionate impacts as a result of the project (Appendix C). The Authority will provide relocation assistance and advisory services to eligible persons who are displaced by this project.

Both Garden Village and Chesaco Heights communities, located between the I-95/I-895 split and the Chesaco Avenue overpass, were avoided by adding retaining walls along the roadway. In addition, retaining walls were used to avoid impacting the Willow Hill and Crystal Spring communities, a majority of the residences along East Avenue, and the 96 inch water line (the Big Inch).

3. Local Businesses

The Preferred Alternate would result in the displacement of one agricultural business located just north of Cowenton Avenue. Because this alternate involves the widening of an existing access-controlled highway corridor and would not add or remove any interchanges, access to local businesses would not be substantially altered. Also, by reducing traffic congestion by improving traffic operation along I-95 through this corridor, access to local businesses would be improved.

4. Environmental Justice

It is the policy of the Authority to ensure compliance with the provisions of Title VI of the Civil Rights Act of 1964, and related civil rights laws and regulations which prohibit discrimination on the grounds of race, color, sex, national origin, age, religion, or physical or mental handicap in all projects that involve action by the Federal Highway Administration (FHWA). The Authority

will not discriminate in project planning, design, construction, right-of-way acquisitions, or provision of relocation advisory assistance. This policy has been incorporated in all levels of the planning process in order that proper consideration may be given to the social, economic, and environmental effects of all projects. Alleged discriminatory actions should be addressed to Ms. Melissa Williams of the Maryland Transportation Authority for investigation. Ms. Williams can be contacted at 410-288-8470, extension 383.

Executive order 12898, "Federal Actions to Address Environmental Justice in Minority and Low-Income Populations" requires that each Federal agency identify, and address, any disproportionately high and adverse impact on minority and/or low-income populations resulting from alternates under consideration and to provide opportunity for participation in the public involvement process.

An analysis of affected persons in the study area indicates that no disproportionate adverse impacts would occur to minority or low-income populations as a result of the Preferred Alternate. Visual impacts to the Fontana Village and Gilley Terrace communities have been minimized due to the redesign of the five level I-95/I-695 Interchange, as stated in the EA, to a four level I-95/I-695 Interchange.

5. Transit

Bus transit would benefit from the implementation of managed lanes under the Preferred Alternate. By using the managed lanes, buses would benefit from the reduced congestion and travel times with ridership anticipated to increase 6% over the General Purpose Lane Alternative by the year 2025. The estimates for the I-95 study are consistent with the national experience in transit. Documentation such as *Traveler Response to Transportation System Changes* indicate that a nine minute travel time savings on a 32 minute trip (present travel time from MD 43 to Downtown Baltimore) coupled with an increase in service to accommodate demand would yield a projected ridership increase between 3 to 11 percent. An additional convenience for buses is the direct access to and from the interchanges for managed lanes that will be provided in the design of the Preferred Alternate.

6. Aesthetics

Effects on visual quality for the Preferred Alternate would include expanded travel lanes, reduced median width, and new structures along the corridor. There would be less vegetation along the highway in medians and along roadsides. New highway structures, such as the proposed I-95/I-695 Interchange, would be visible along the corridor. The five level I-95/I-695 Interchange described in the EA has since been redesigned to a lower, less intrusive four level interchange. However, despite these changes, the overall visual appearance would still be consistent with the visual character of the Interstate highway system as it currently exists. Landscaping opportunities will be considered to lessen the visual intrusion where appropriate.

7. Community Facilities and Services

Small amounts of ROW would be acquired from eight community facilities within the study area. Land acquired from these facilities would be sliver takes and would not affect the operation or use of these facilities. The Preferred Alternate would have a positive effect on emergency services throughout the project area. Traffic congestion along I-95 would be reduced, improving emergency response times and access to existing facilities. In addition, the Authority is working closely with emergency response providers to improve safety and access to median crossovers.

B. Cultural Resources

In compliance with Section 106 of the National Historic Preservation Act of 1966, it has been determined through consultation and coordination with the Federal Highway Administration and the State Historic Preservation Officer (SHPO) that the Preferred Alternate will have no effect on archaeological resources, as no archaeological resources within the study area are eligible for listing on the National Register of Historic Places. One historic property that is eligible for listing in the National Register of Historic Places (the Koch property), is located within the project's area of potential effect. However, the property is separated both physically and visually from the highway by a substantial stand of trees. Therefore, the SHPO concluded that the Preferred Alternate would have no adverse effect on this or any other historic sites. Correspondence documenting this finding is located in Appendix D.

C. Natural Environment

1. Farmlands

Because the area surrounding Section 100 is designated for urban development, Prime Farmland Soils and Soils of Statewide Importance located within the study area are exempt from Farmland Protection Policy Act of 1981 (FPPA) coordination. The Preferred Alternate would not impact any State protected farmlands within the study area.

2. Soils

The amount of impervious area would increase by 153 acres throughout the study area. The amount of erosion and sedimentation would increase in areas exposed temporarily during construction due to the increase in stormwater runoff from the impervious surfaces. The impervious area for each alternate is listed in **Table III-2.**

Table III-2. Estimated Proposed Impervious Area

3rd Order Watershed	Existing Impervious Area (acres)	Proposed New Impervious Area (acres)	Percent Increase Over Existing
Moores Run	33	49	50%
Redhouse Creek	31	41	33%
Stemmers Run	63	114	80%
White Marsh Run	92	156	69%
Bird River	14	22	60%
Gunpowder River	14	18	30%
Total	247	400	62%

Several methods will be used during construction to decrease erosion effects, including structural, vegetative, and operational methods. Grading and Erosion and Sedimentation (E&S) Plans will provide control measures to minimize potential impacts during pre-construction and post-construction activities in accordance with Maryland Department of the Environment (MDE) regulations. In general, the topography of the study area is relatively gentle (average 0-5 percent); however, there are localized areas of steeper slopes that may equal or exceed 15 percent. Where these areas coincide with proposed improvements, appropriate engineering measures and sediment controls would be employed to reduce erosion and sedimentation.

3. Floodplains

The Preferred Alternate would affect approximately 45 acres of floodplains in the study area. A majority of the floodplain impacts are caused by fill encroachment and pier placement, especially within the I-95/I-695 Interchange. Floodplain impacts for the Preferred Alternate are described in **Table III-3.**

Avoidance and minimization efforts include reducing encroachments by increasing the steepness of fill slopes and/or incorporating retaining walls. In addition, the proposed bridge span that carries the I-895 northbound general purpose lanes over the existing I-95 southbound and proposed I-95 northbound lanes will be lengthened to avoid Moore's Run and minimize floodplain encroachment. Also, bridge spans in the I-95/I-695 Interchange are being considered as avoidance and minimization measures for the Stemmer's Run floodplain.

Table III-3. Impacts to Floodplains from the Preferred Alternate

3rd Order Watershed	Floodplain	Preferred Alternate Impacts (acres)	Plate No.
Redhouse Creek	Moores Run	2.72	27-29
	Redhouse Creek	0.75	32
Stemmers Run	Stemmers Run	35.53	34-39
White Marsh	White Marsh Run	5.50	44, 45, 47
	Honeygo Run	0	48
Lower Gunpowder	Gunpowder	0	52
Total		**44.50***	

*Minimization and avoidance measures have been added to the design of the Preferred Alternate since the EA was issued.

4. Forests

Widening I-95 would affect existing forest edge and create new forest edge, thereby reducing or eliminating a shallow wooded buffer between I-95 and some adjacent communities. A majority of the forest impacts occur within and adjacent to the proposed interchanges. These forest stands are fragmented and have been polluted from the existing roadway. In addition, the proposed I-895 northbound span over Moores Run and I-95 would affect a forested area east of the existing interchange. The Preferred Alternate will comply with the Maryland Reforestation Act, which requires the minimization of cutting or clearing trees, replacement of wooded areas affected and/or contributions to a reforestation fund for highway construction projects. Mitigation for forest impacts will be provided at a one-to-one ratio. **Table III-4** shows the amount of forested area that would be impacted by the Preferred Alternate.

Table III-4. Woodland Impacts by Sub-Watershed

Sub-Watershed	Woodland Impact (acres)
Moores Run	0
Redhouse Creek	20.39
Stemmers Run	46.47
White Marsh Run	46.59
Bird River	17.84
Gunpowder River	9.77
Total	**141.06***

* Since the EA was issued, the Limit of Disturbance has changed due to design modifications

5. Large and Significant Trees

The Preferred Alternate would impact eleven large and significant trees (**Table III-5**). Ten of the eleven large and significant trees affected by the Preferred Alternate would be removed. Trees 49, 50, 59, and 63 are in poor health due to root zone compaction and air pollution from the existing I-95.

6. FIDS

The Preferred Alternate would impact approximately 6.31 acres of Forest Interior Dwelling Species (FIDS) habitat within the study area due to the placement of SWM facilities and roadway widening. The SWM facilities would be located adjacent to the roadway embankment within several wooded areas of the Bird River 3rd Order Watershed. The SWM facilities and road widening would result in a shift of the forest edge towards the interior of the forest, minimizing the habitat available. The majority of the impacts are to fragmented sections of FIDS habitat that do not provide high quality habitat. Other more contiguous areas of FIDS habitat that do provide valuable habitat are present within the study area, however they would not be impacted by the project.

7. Threatened and Endangered Species

It has been determined that there will be no State- or Federal-listed threatened or endangered species impacted by the Preferred Alternate.

Table III-5. Impacts to Large and Significant Trees from the Preferred Alternate

Tree #	Plate #	Tree Species		Impact to Critical Root Zone (Percent)	
		Common Name	Scientific Name	Percent	Removed or Impacted
50	32	Southern red oak	*Quercus falcata*	60	Removed
49	32	Chestnut oak	*Quercus prinus*	60	Removed
53	38	Red oak	*Quercus rubra*	30	Removed
57	36	White oak	*Quercus alba*	60	Removed
59	36	Southern red oak	*Quercus falcata*	30	Removed
60	40	Southern red oak	*Quercus falcata*	50	Removed
61	41	Black willow	*Salix nigra*	5	Impacted
62	41	Black willow	*Salix nigra*	40	Removed
63	41	Silver maple	*Acer saccharinum*	100	Removed
77	35	Yellow poplar	*Liriodendron tulipifera*	5	Removed
78	35	Yellow poplar	*Liriodendron tulipifera*	15	Removed

8. Noise

Of the 23 NSA's in the study area (**Figures III-1A to 1C**), the Federal Noise Abatement Criteria were exceeded at 17, and noise mitigation was evaluated at each of these areas. The use of earth berms is generally not appropriate for urban areas such as Section 100 because of the right-of-way constraints. Therefore, sound barriers were evaluated for each impacted area. Any existing noise abatement measures that are affected by the Section 100 project, including berms and noise walls, would be replaced with new measures. NSAs 1, 3, 4, 5, and 6 have existing noise walls currently in place. The existing wall at NSA 1 would need to be modified near Receptor 1-1 (north end of the barrier) from 17-foot to a 23-foot high noise barrier, for approximately 1,251 feet paralleling northbound I-95. In NSA 3, approximately 725 feet of the north end of the existing barrier would need to be rebuilt west of the existing barrier for noise abatement. The existing noise wall at NSAs 4, 5, and 6 will be moved further away from the centerline of I-95 in order to accommodate the wider typical section of the Preferred Alternate.

Construction of the Preferred Alternate would have direct impact on receptors located close to the construction site, and would have an indirect impact on receptors located near roadways where traffic flow characteristics are altered due to re-routing of vehicles from the construction area. As with any major construction project, the area around the construction site is likely to experience varied periods and degrees of noise impact. Several mitigation procedures will be followed to assist in minimizing the temporary impacts of construction noise. Adjustments to the equipment, the provision of temporary noise barriers, varying the construction activity areas to redistribute noise events, and offering financial incentives to contractors to work quickly and quietly are all options to decrease temporary noise impacts. These mitigation measures will be considered during final design to minimize public exposure to short-term noise impacts.

Sound barriers were evaluated and found feasible and reasonable for 10 of the 17 impacted NSAs within the study area: 1, 3, 7, 8, 9, 11, 14, 16, 22, and 23 (**Table III-6**).

Table III-6. Preliminary Noise Barrier Cost Analysis Summary

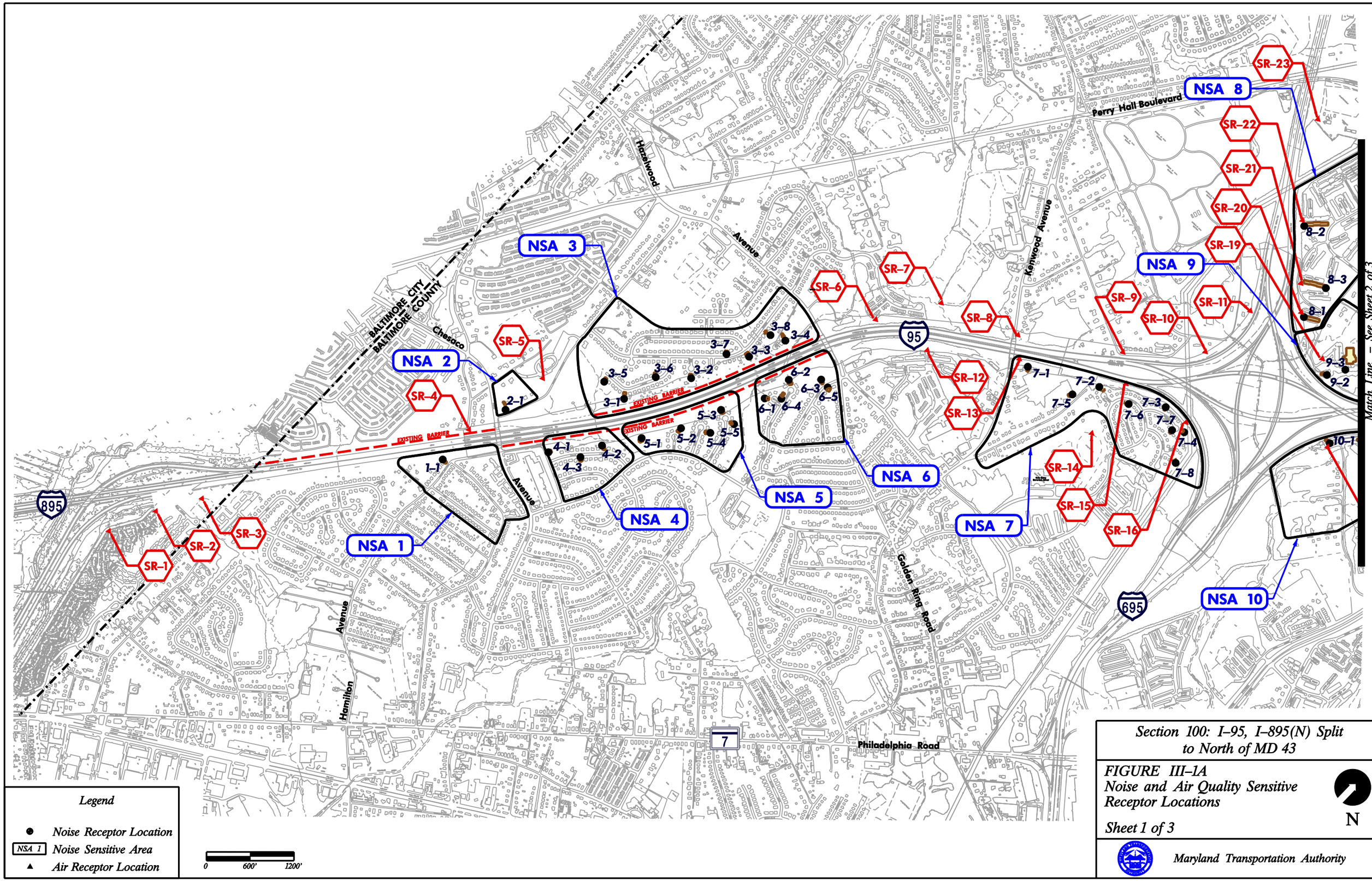
NSA	Length (ft)	Height (ft)	Cost of Sound Barrier	Insertion Loss (first row residences)	Benefited Residences	Cost/Benefited Residence
1	1,251	23	$488,641	6 (dBA)	18	$27,147
3	725	21	$249,123	7-11 (dBA)	30	$8,304
7	3,871	20	$1,280,527	8-15 (dBA)	35	$36,586
8&9	4,279	30	$2,123,240	5-8 (dBA)	193	$11,001
11	2,033	14	$470,761	8-12 (dBA)	14	$33,626
14	1,250	20	$413,500	8-11 (dBA)	36	$11,486
16	2,380	18	$708,574	5-12 (dBA)	24	$29,524
22	2,636	19	$812,042	7-10 (dBA)	17	$47,767
23	2,300	20	$760,840	5-10 (dBA)	28	$27,173
Total Cost of Sound Barriers for the Preferred Alternate = $7,565,553						

9. Air

The Section 100 study area is located within the Metropolitan Baltimore Intrastate Air Quality Control Region. This region is not designated as a non-attainment area for the following pollutants: carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), lead (Pb), or particulate matter (PM_{10}). It is, however, designated as a severe non-attainment area for ozone. Because of this non-attainment designation for ozone, the region is subject to the implementation of reasonably available control measures, such as the Vehicle Emissions Inspection Program (VEIP), and also is subject to air quality conformity requirements under Section 176 of the Clean Air Act, which require that the region's long range transportation plan conform to the limits on pollutant emissions in Maryland's State Implementation Plan.

The CAL3QHC models did not predict any concentrations that would exceed the Statewide/National Ambient Air Quality Standards (S/NAAQS) of 35 parts per million (ppm) for the one-hour concentration of CO or nine ppm for the eight-hour concentration of CO. The S/NAAQS concentrations would not be exceeded for the Preferred Alternate. All of the Air Quality Sensitive Receptor locations are shown on **Figures III-1A -1C**.

Section 100 is currently included in the Baltimore region's long range transportation plan, "Transportation 2030," which was adopted by the Baltimore Regional Transportation Board (BRTB) in December 2004. The air quality conformity analysis for the 2030 plan assumed completion of the General Purposes Lanes Alternate for Section 100. The General Purpose Lanes Alternate was used in the conformity analysis because it represented a worst-case scenario for air emissions. After the air quality conformity analysis was completed, the Authority identified the Managed Lanes Alternate as its preferred alternative. By comparison to the General Purpose Lanes Alternate, the Managed Lanes Alternate will have equivalent or lower emissions as a result of the free-flowing traffic in the managed lanes due to the higher LOS. Therefore, the selection of the Managed Lanes Alternate is consistent with the conformity finding for the long range plan and TIP.

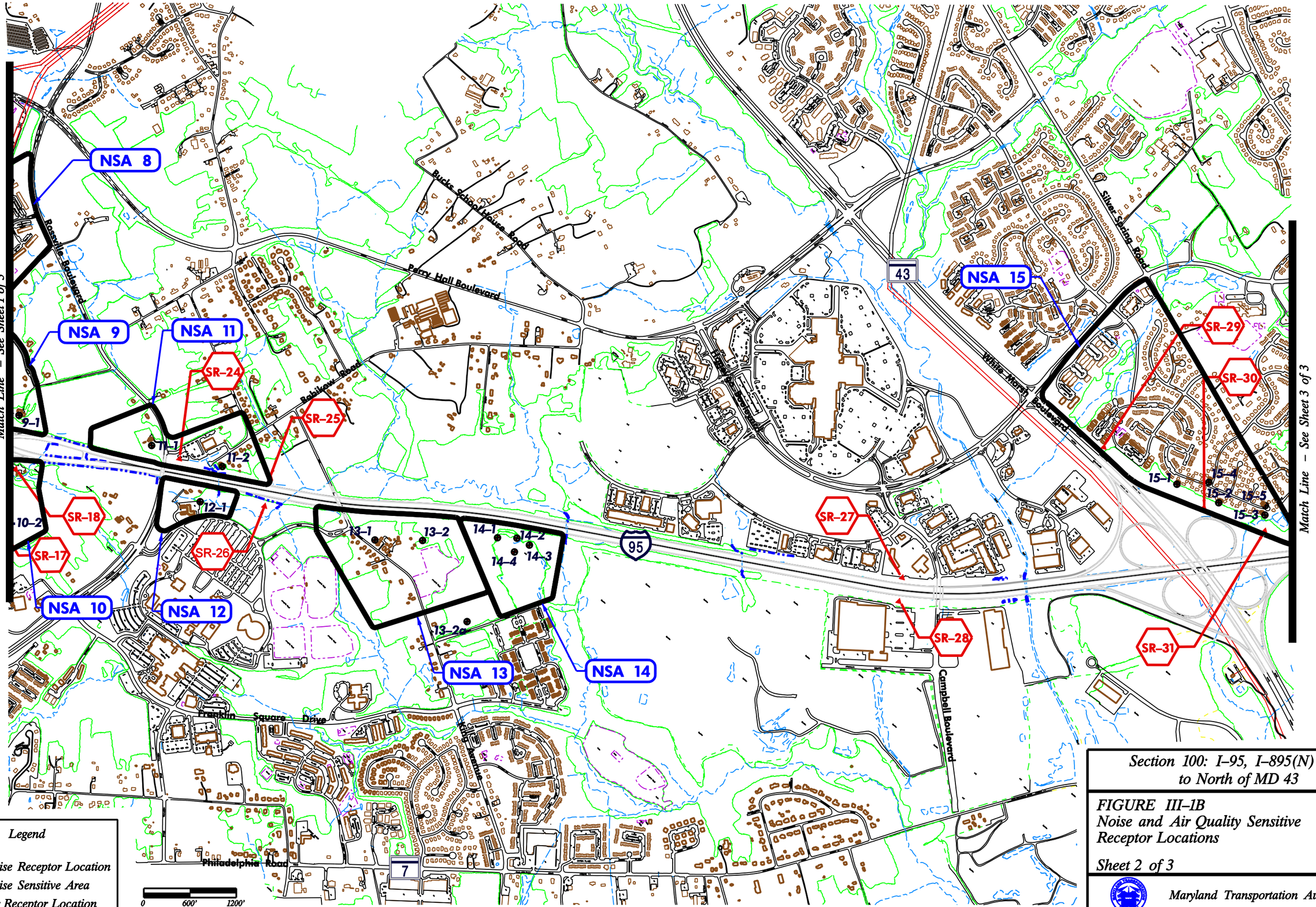


Section 100: I–95, I–895(N) Split to North of MD 43

FIGURE III–1A
Noise and Air Quality Sensitive Receptor Locations

Sheet 1 of 3

Maryland Transportation Authority



Legend

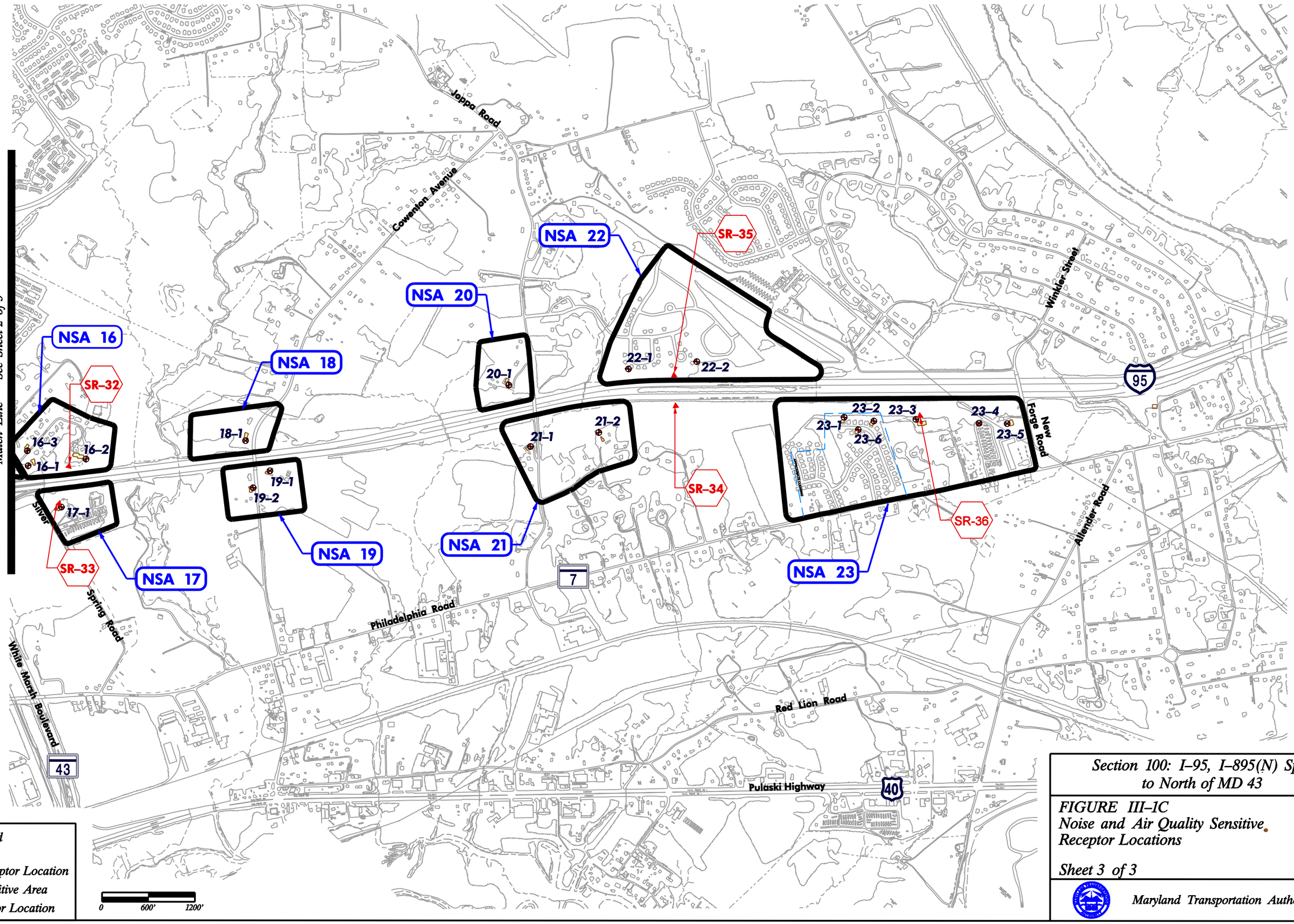
- Noise Receptor Location
- NSA 1 Noise Sensitive Area
- Air Receptor Location

Section 100: I–95, I–895(N) Split to North of MD 43

FIGURE III–1B
Noise and Air Quality Sensitive Receptor Locations

Sheet 2 of 3

Maryland Transportation Authority



Section 100: I–95, I–895(N) Split to North of MD 43

FIGURE III–1C
Noise and Air Quality Sensitive Receptor Locations

Sheet 3 of 3

Maryland Transportation Authority

The Authority is coordinating and will continue to coordinate with BRTB to ensure that the Managed Lanes Alternate is included in the air quality modeling for the next update to the region's long range plan and transportation improvement program (TIP). The first step in this process is the update cycle for the 2006-2010 TIP, which began in March 2005. Refer to the Section 100 Air Quality Technical Report for additional information.

10. Hazardous Materials

A Preliminary Site Assessment (PSA) is recommended for three high potential contaminant value sites impacted by the Preferred Alternate: the McCormick Place/Ayres property, Honeygo Run Reclamation Center, and Trailer Park/Honeygo Run Reclamation Center. Removal of the solid waste debris piles at two sites (ADM ID Nos. 17 and 18) is required. Additional studies are not recommended at the remaining sites impacted by the Preferred Alternate. It should be noted, however, that should underground storage tanks (USTs) or other soil and/or groundwater contamination be encountered, remediation would be undertaken in accordance with all applicable local and State regulations.

11. Waters of the US

The USACE is a concurring agency on all documents required in the NEPA process for Section 100. The Authority has coordinated with the USACE to ensure all minimization and avoidance efforts for stream and wetland impacts have been considered during the planning phase of Section 100. The Authority will continue to coordinate with the USACE on all stream and wetland impacts throughout the design and construction phases.

Several stream crossings would be required for the Preferred Alternate, thereby resulting in impacts to Waters of the U.S. There would be approximately 12,998 linear feet of streams affected by the project: including 5,858 linear feet of perennial streams, 3,902 linear feet of intermittent streams, and 3,238 linear feet of ephemeral drainage (**Table III-7**).

Table III-7. Stream Impacts from the Preferred Alternate

Type of Impact	Watershed	Herring Run	Redhouse Creek	Stemmers Run	White Marsh Run	Bird River	Gunpowder River	Total
Impacts in Linear Feet								
Permanent	Perennial	0	442	2,122	1,335	450	1,509	5,858
	Intermittent	0	1,258	1,637	418	436	153	3,902
	Ephemeral	0	0	0	3,238	0	0	3,238
	Total (lf)	**0**	1,700	**3,759**	**4,991**	**886**	**1,662**	**12,998**
Temporary	Perennial	0	686	380	969	129	292	2,456
	Intermittent	0	1,031	530	218	0	39	1,818
	Ephemeral	0	0	0	750	0	0	750
	***Total (lf)**	**0**	**1,717**	**910**	**1,937**	**129**	**331**	**5,024**

*All temporary impacts were calculated using the LOD. The LOD represents 25 feet from the edge of the cut/fill line. Stream impacts have been reduced since publication of the EA due to refinements to the Jurisdictional status of waters and minimization and avoidance measures.

A majority of the streams impacted are classified as "Use I waters" and have minimal value for aquatic life. Most of the intermittent and ephemeral streams' primary water source is stormwater runoff from I-95. The impacts would include culvert extensions, filling of waters, channel relocations, and/or piping of waters between existing culverts. A large portion of the impacts to Stemmers Run (a perennial waterway) would occur at the proposed I-95/I-695 Interchange. The portion of Stemmers Run within the vicinity of the I-695 interchange is currently in poor condition from stormwater runoff, debris collection, and impacts from the construction of the existing interchange.

Complete avoidance of stream systems by the Preferred Alternate is not feasible because most systems lie perpendicular to existing I-95. Minimization efforts for Waters of the United States (WUS) include the use of steeper (2:1) roadway embankments and retaining walls to minimize the footprint. As this project progresses into final design, avoidance and minimization measures would continue to be evaluated. Additional effects that will be considered in the minimization design efforts include shading, loss of riparian vegetation, and potential changes to stream hydrology/hydraulics. Many streams in the study area currently have floodplain access; this would be retained wherever possible to preserve benefits such as velocity dissipation, storage, and sedimentation/stabilization. Retaining or adding riparian buffers, as well as fish passage through structures, will be considered during the project's design phase.

12. Wetlands

The majority of effects to wetlands caused by the Preferred Alternate would occur from widening the mainline of I-95 and improvements to the I-95/I-695 Interchange (**Table III-8**). The most extensive impact to wetlands would occur in the median of I-95 north of Joppa Road, where systems BRBR-WET5, GPJR-WET6, 7, and 8 would be filled (**Appendix A, Plates 50 and 51**). Because these wetlands are located in the median, they serve minimal functional value for aquatic and/or wildlife habitat. Impacts to wetlands within the Herring Run, Redhouse Creek, Stemmers Run (outside of the I-95/I-695 Interchange), White Marsh Run (except WMHG-WET3), and Bird River 3rd Order Watersheds would occur along the I-95 and I-695 mainline widening, where wetland systems that have hydrology linked to existing roadway drainage, would be filled.

A majority of the wetlands are located along ditchlines and within depressions created from the original construction of I-95. It is anticipated that these wetlands will be replaced in kind once the construction of the Preferred Alternate is completed. The primary function of all of these wetlands is sediment retention, sequestration of nutrients, and toxicant retention. These wetlands provide poor aquatic and/or wildlife habitat.

Total permanent wetland impacts for the Preferred Alternate would be approximately 3.51 acres.

Table III-8. Wetland Impacts from the Preferred Alternate

Type of Impact	Watershed	Herring Run	Redhouse Creek	Stemmers Run	White Marsh Run	Bird River	Gunpowder River	Total
Permanent	POW	0.0	0.0	0.0	0.24	0.0	0.0	0.24
	PEM	0.0	0.06	1.02	0.50	0.02	0.44	2.04
	PSS	0.0	0.0	0.32	0.0	0.0	0.0	0.32
	PFO	0.0	0.0	0.16	0.30	0.0	0.45	0.91
	Total (acres)	**0.0**	**0.06**	**1.50**	**1.04**	**0.02**	**0.89**	**3.51**
Temporary	POW	0.0	0.0	0.0	0.55	0.0	0.0	0.55
	PEM	0.0	0.05	0.0	0.35	0.0	0.05	0.45
	PSS	0.0	0.0	0.23	0.0	0.0	0.0	0.23
	PFO	0.0	0.0	0.01	0.03	0.08	0.01	0.13
	Total* (acres)	**0.0**	**0.05**	**0.24**	**0.93**	**0.08**	**0.06**	**1.36**

*All temporary impacts were calculated using the Limits of Disturbance (LOD). The LOD represents 25 feet buffer from the edge of the cut/fill line. Wetland impact numbers have been reduced since publication of the EA because of refinements to the Jurisdictional status of wetlands and minimization and avoidance measures added to the design.

Mitigation for Stream and Wetlands

For those wetland systems which cannot be replaced in-kind (i.e. wetlands forming due to the new topography and hydrology associated with the proposed roadway), a wetland mitigation site search was conducted using GIS information and a review of aerial photography. The Authority coordinated with the USACE, MDE, and the Baltimore County Department of Environmental Protection and Resource Management (DEPRM) for existing opportunities and conducted a field reconnaissance and assessment of all identified sites. Twelve sites were presented during an interagency field meeting in August 2003. Upon further coordination with the USACE and MDE, four sites (**Figures III-2A-2D**) were selected for mitigation investigations and plan development. Appendix E contains the correspondence between the Authority and property owners. The following is a summary of each of the proposed site's characteristics, amount and type of mitigation available and potential functions and values.

White Marsh Run

The largest potential mitigation site identified for this project is along a lower portion of White Marsh Run from east of US 40 to Ebenezer Road (**Figure III-2A**). Approximately 6000 feet of stream and 4-10 acres of wetland are targeted for improvement/replacement based on a preliminary aerial photography estimate and site reconnaissance. The site is situated on an old gravel mine and its intended use as mitigation will be for wetlands replacement, enhancement and/or preservation and stream restoration. The floodplain areas have become partially forested and large sections of some parts of the stream banks are unstable or have been poorly stabilized with gabion baskets, concrete, etc. There are also sections of the channel, which have disconnected floodplains, where renewed access would serve to both enhance floodplain wetland quality as well as reduce bank and bed stress and associated erosion. There are sections of split channel flows (approximately ¾ mile downstream of US 40) where restoration efforts to reduce the frequency of flooding into the overflow channel (via grade controls) would assist in sediment transport in the main channel. This improved transport would reduce bed degradation, improve instream habitat and reduce the potential for stresses on the adjacent banks in the main channel.

Near the approach to the MD 43 crossing, there are extended sections of stone reinforced bank protection along the west bank, which have become undermined. Efforts here would include removal of the stones and replacement with an earthen bank stabilized with bioengineering and/or native plantings. Downstream of the stone-lined banks, is the new crossing of White Marsh Run by MD 43 Extended. Restoration efforts here (if required) would include an evaluation of an improvement to the platform approach to the bridge as well as providing adequate floodplain access through the structure. Instream structures (e.g. cross-vanes) may be utilized to fix the channel low flow approach under the structure.

Additional efforts include the restoration of the anadromous fish passage at U.S. 40 by removing an existing Alaska Steep Passage Skeet fish ladder and raising the streambed from several hundred feet downstream up to a passable elevation under U.S. 40. Approximately 6000 feet of stream and 4-10 acres of wetland are targeted for improvement/replacement based on a preliminary aerial photography estimate. This would not only improve the downstream reach conditions by reducing channel entrenchment, but will also open up the entire White Marsh system upstream of US 40 to anadromous fish; something that likely has not occurred for over 30 years.

Estimates from National Wetland Inventory (NWI) mapping show 95 acres of wetlands within this mitigation site. It is likely that many of these wetland systems have changed character and/or have lost wetland status due to channel incision or other land use alteration. Previous mining activity on this site has altered the historic amount and quality of wetlands. Wash pools left over from mining may now function as wetlands. Other previously wetland areas may have been drained, or drainage systems may still occur and provide active drainage. Additional mitigation opportunities at this site include: wetland preservation, enhancement, creation, intermittent stream restoration or enhancement and upland terrestrial habitat improvements. This includes some large areas of potential enhancements, such as the existing large wash pond just north of the MD 43 crossing and east of US 40. This pond is very slowly filling with fine sediments and is mostly devoid of vegetation. Where sediment accretion is more rapid along the northern fringe/stream interface, scrub-shrub and emergent wetlands have established. Potential wetland enhancement efforts here may include both passive and active methods to increase wetland area. Active methods would include the potential filling and/or planting in relatively shallow areas. Passive techniques may include efforts to “roughen-up” the shallow surface areas using willow posts or other means to increase sedimentation and subsequent wetland vegetation recruitment. In addition to the wetland enhancement opportunities, the inlet and outlet to this pond may be retrofitted to reduce the occurrences of shad trapping in the pond. At high flows, shad access the pond at the inlet in the northwest corner; then as the stage drops, they become trapped and often die. Frequent coordination efforts with MD DNR Fisheries and USFWS will be conducted in association with any proposed improvements to this condition affecting the shad migration.

More information on the type, quality and amounts of mitigation will become available after field assessments and preliminary design studies begin.

I-95/I-695

The I-95/I-695 site is located directly over a portion of Stemmers Run (Figure III-2B). Stemmers Run, which runs through the middle of the interchange, was channelized during the

original construction of the roadway. Before the construction of I-695, this area was a wide floodplain containing a meandering stream as evidenced by historical aerial photos from the 1940s. The existing stream flows through a concrete channel, where the bottom of the channel has been washed out. Portions of the concrete bank have failed and several box culverts block fish passage. Approximately 2,400 feet of stream is targeted for restoration. Even though the new interchange will inhibit Stemmers Run by the placement of new piers and ramps, there are opportunities to greatly improve upon flood-prone area access and energy dissipation. The improvements will be accomplished by removing the concrete flumes, increasing channel sinuosity and increasing the frequency of access to floodplains for smaller storm events. This will provide additional storage for flood waters, with the goal of reducing downstream flooding and associated channel instability issues. Additional restoration of floodplain and wetlands may be feasible depending on further studies and coordination between highway designers and the preliminary mitigation design teams. Wetlands restoration or enhancement at this location is considered an additional potential benefit associated with improved floodplain access. Wetland functions and values within this system will be primarily beneficial for water quality conditions versus wildlife habitat.

Linover Park

The Linover Park site consists of property owned by Baltimore County and a private landowner, and State Highway Administration (SHA) right-of-way adjacent to the inner loop of I-695 (**Figure III-2C**). Stemmers Run flows parallel to I-695 across a farm field before turning sharply into Linover Park. The farm field has rubble-reinforced earthen levies that straighten the channel and restrict access to the floodplain (farm field). Another part of the channel, just west of Linover Park, is a failed section of concrete trapezoidal channel. Channel restoration opportunities include channel stabilization, floodplain reconnection and wetland restoration. The improvements would lessen the erosive force of Stemmers Run within Linover Park and improve aquatic and terrestrial habitats. This site provides approximately 1000 feet of stream restoration along Stemmers Run. Floodplain and/or wetland restoration may be feasible pending further field investigations. Mitigation efforts here would focus on stabilizing the northern (I-695 side) streambank including structures such as rock vanes to direct flows away from the north bank and restoring access to the floodplain along the south bank.

King Avenue

The King Avenue site is on an existing open field adjacent to both I-95 and King Avenue (**Figure III-2D**). This field is being actively farmed for corn, hay and contains a small vegetable garden. An intermittent channel (drainage ditch) was created to provide drainage for the farm field. A culvert draining portions of I-95 and Essex Community College drains into this site from beneath I-95. The combined flows of these two intermittent channels create a perennial channel, the South Fork of White Marsh Run, which flows along the toe of the existing I-95 roadway embankment in a concrete channel. Under the mitigation concept, the perennial portion of the stream would be relocated, due to fill from roadway widening, and set in a natural channel. The surrounding riparian area is targeted to be restored as forested wetland and forested upland buffer. The mitigation goals for this site are to re-establish a natural channel of approximately 800 feet of stream and one acre of forested wetland and to include some forested buffer in a headwater area of the South Fork of the White Marsh Run.

The potential replacement quantities for streams and wetlands at each site are summarized in **Table III-9 and Table III-10.**

Table III-9: Stream Mitigation Replacement Quantities

Mitigation Site	White Marsh Run	I-95/I-695 Interchange	Linover Park	King Avenue	Total
Intermittent	Unknown	0	50	300	350+
Perennial	6,000	2400	1000	500	9,900
Total Streams (linear feet)	**6,000+**	**2,400**	**1,050**	**800**	**10,250+**

Table III-10: Wetland Mitigation Replacement Quantities

Mitigation Site	White Marsh Run	I-95/I-695 Interchange	Linover Park	King Avenue	Total
POW	Unknown*	0	0	0	0+
PEM	Unknown*	0-.5 acre	0	0	0-0.5
PSS	Unknown*	0	0	0	0+
PFO	Unknown*	0	0.0-1.0 acre	0.5-1.0 acre	0.5-2.0
Total Wetlands (acres)	**4-10 acres****	**0-0.5 acre**	**0-1.0 acre**	**0.5-1.0 acre**	**4.5-12.5+**

* Further field study is required to determine potential mitigation opportunities concerning this particular type of system.
** NWI mapping shows up to 95 acres of wetlands of various types within this mitigation site of which it is estimated that 4-10 acres would be suitable as a combination of restoration, creation, enhancement and/or preservation upon incorporation of the final accepted mitigation package

Mitigation Commitments/ Milestones

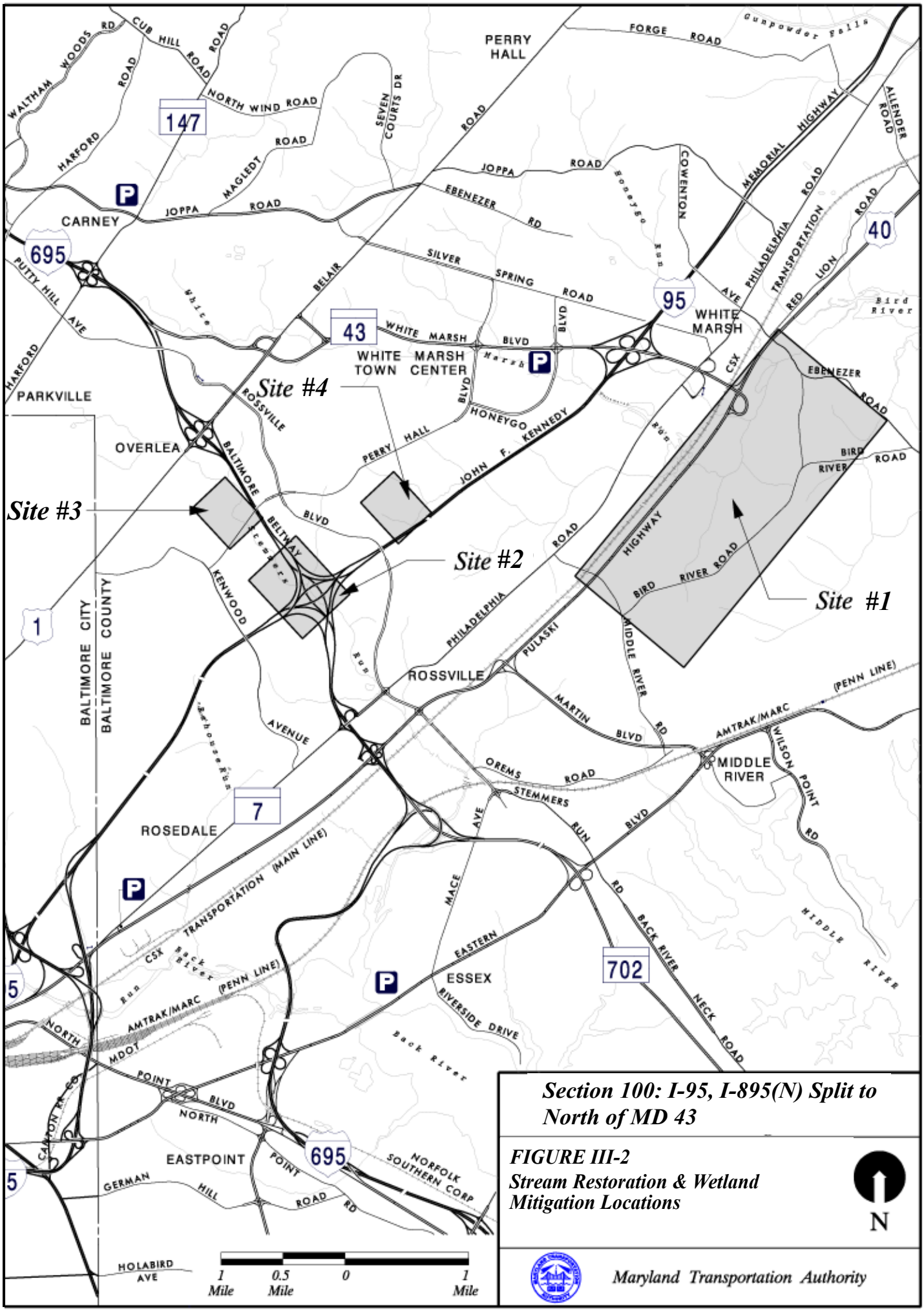
The four mitigation sites: White Marsh Run, I-95/I-695 interchange, Linover Park, and King Avenue vary in size and will be used to mitigate for various types of Section 100 impacts (i.e. streams, wetlands, floodplain, etc.). The White Marsh Site, being east of the project site and US 40, is the only one which has no dependence on the highway construction contracts. The mitigation efforts within I-695/I-95 will be intricately linked to those specific phases of work for the various overpasses and ramps. Both the Linover Park and King Avenue Sites are adjacent to Section 100 work areas of I-695 and I-95 respectively, though, are less dependent on roadway construction phasing.

Table III-11 describes the approximate milestones for each of the selected mitigation sites. Milestone windows may vary depending on both changes in roadway designs/ scheduling as well as potential changes to the final mitigation design package. The Authority will be able to provide a more definitive time schedule for each site at the 70% design level.

Table III-11: Mitigation Milestones

Mitigation Site	Related to Highway Construction	Estimated Construction Window	Stream	Stream Use and Closure Period*	Best Construction Window Starting**
White Marsh	none	18 months	White Marsh Run	Use I	Late Summer/Fall
I-695/I-95 Interchange	high	24 months	Stemmers Run	Use I	Late Summer/Fall
Linover Park	low	12 months	Stemmers Run	Use I	Late Summer/Fall
King Avenue	low	8 months	South Fork of White Marsh	Use I	Late Summer/Fall

* The closure Period for Use I waters is March 1 to June 15.
** Lower less flashy flows outside of closure period.



Section 100: I-95, I-895(N) Split to North of MD 43

FIGURE III-2
Stream Restoration & Wetland Mitigation Locations

Maryland Transportation Authority

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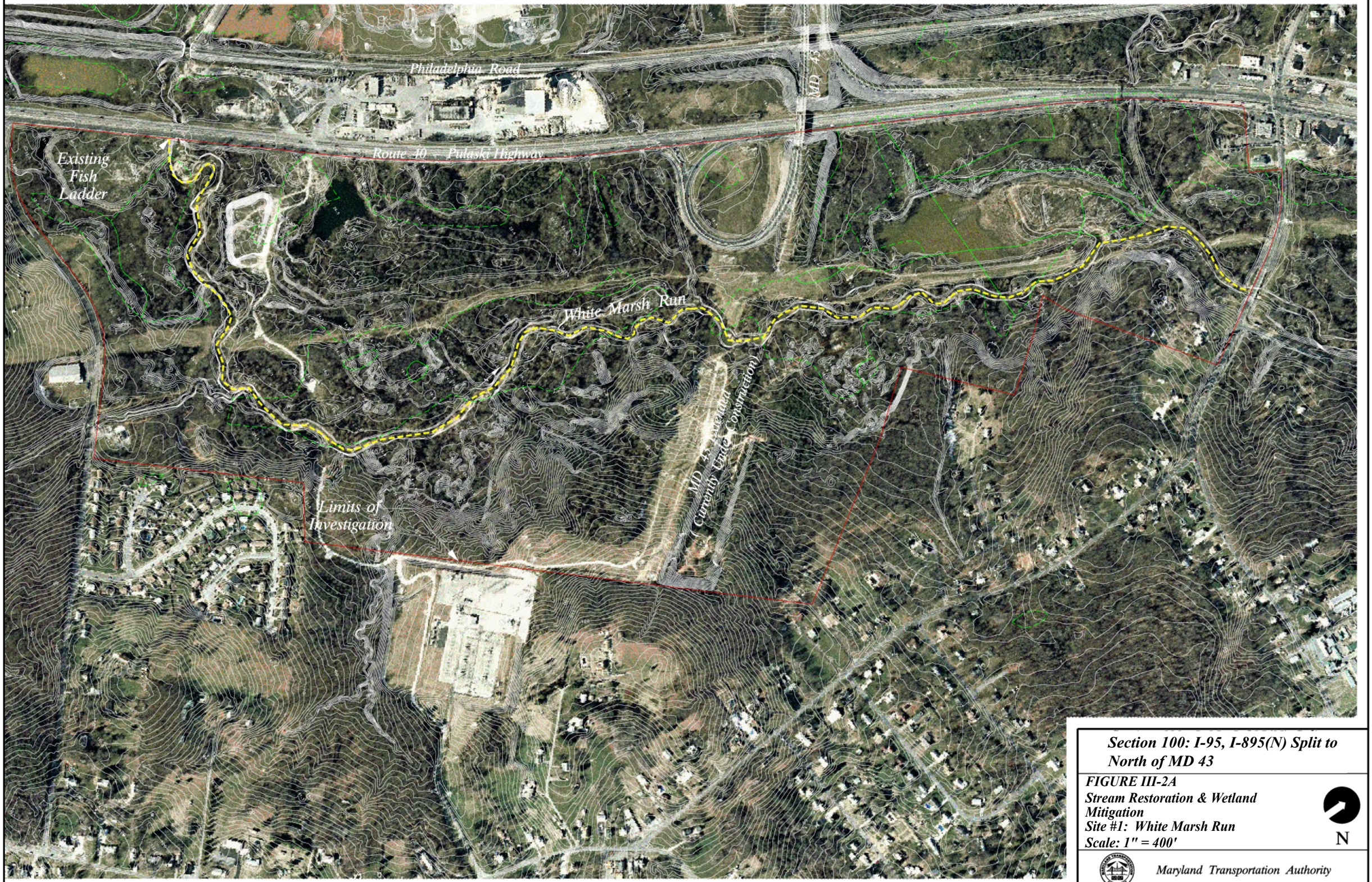

Section 100: I-95, I-895(N) Split to North of MD 43

FIGURE III-2A
Stream Restoration & Wetland Mitigation
Site #1: White Marsh Run
Scale: 1" = 400'

Maryland Transportation Authority

Note:
Entire Interchange will be Investigated for Stream Restoration, Floodplain Re-connection, Wetland and Riparian Buffer Establishment

Section 100: I-95, I-895(N) Split to North of MD 43

FIGURE III-2B
Stream Restoration & Wetland Mitigation
Site #2: I-695, I-95 Interchange
Scale: 1" = 400'

N

Maryland Transportation Authority

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Section 100: I-95, I-895(N) Split to North of MD 43

FIGURE III-2C

Stream Restoration & Wetland Mitigation

Site #3: Linover Park

Scale: 1" = 400'

Maryland Transportation Authority

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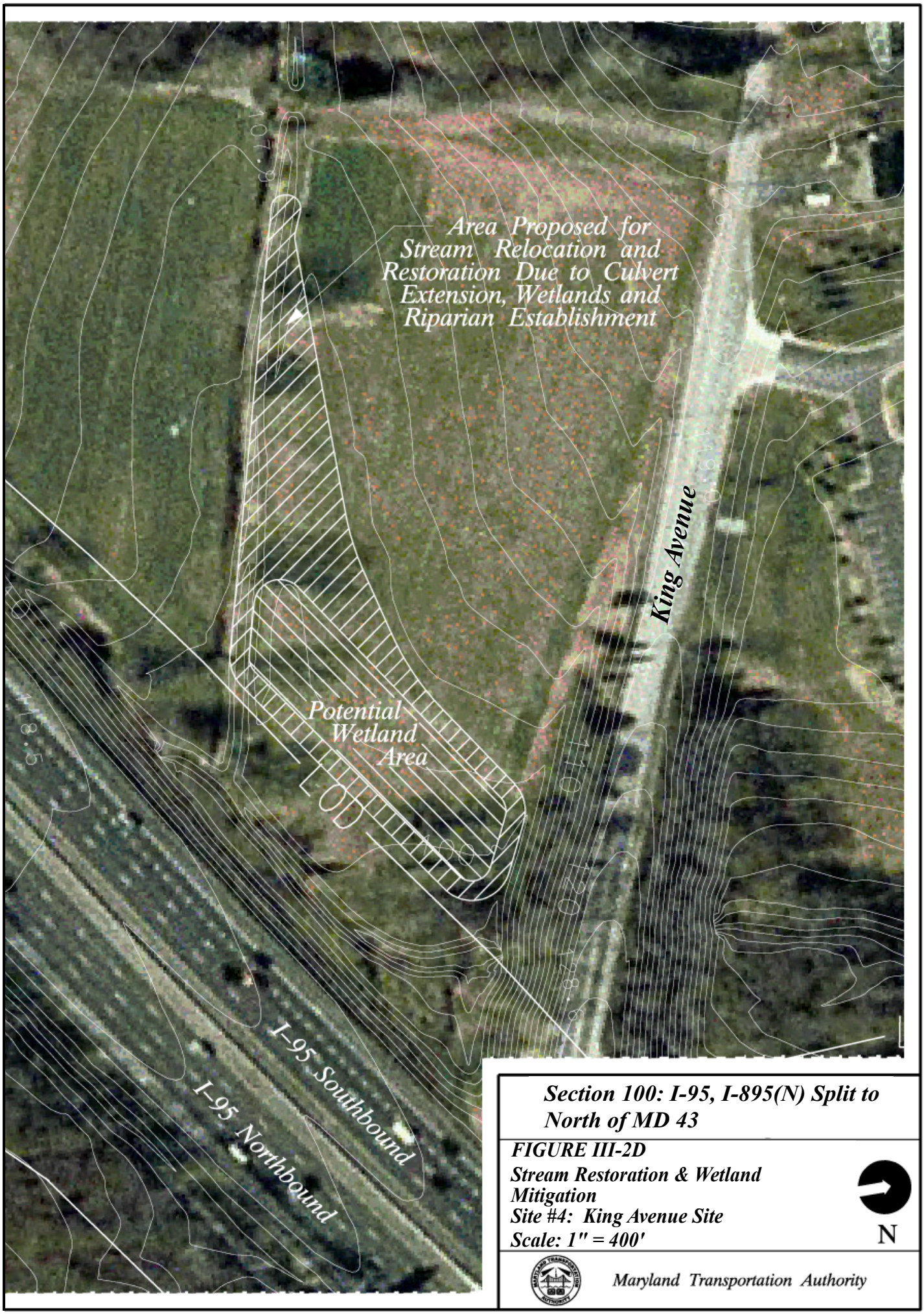

Section 100: I-95, I-895(N) Split to North of MD 43

FIGURE III-2D

Stream Restoration & Wetland Mitigation

Site #4: King Avenue Site

Scale: 1" = 400'

Maryland Transportation Authority

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D. Publicly Owned Parks and Recreation Areas

There would be no use of publicly owned public parks and/or recreation areas within the study area as a direct result of the Section 100 project; however temporary occupancy of portions of Linover Park and Cowenton Avenue Park would be necessary during the construction of the project. The Baltimore County Department of Recreation and Parks, as the agency with jurisdiction over both parks, has no objections to these temporary occupancies and has concurred with the proposed project.

Baltimore County has given written permission to allow the Authority to enhance Stemmers Run in Linover Park (Appendix D). The temporary occupancy is necessary to provide stream enhancements as part of the mitigation efforts for I-95 Section 100. The stream enhancement project in Linover Park is not a "use" under Section 4(f) of the U.S. Department of Transportation Act of 1966 because the work is consistent with the function of the existing parkland and is an enhancement to the park, and the Authority consulted with and received written concurrence from the municipality with jurisdiction over the park.

Similarly, Baltimore County has given written permission to remove a private driveway that leads to an access point to the Cowenton Avenue Park (Appendix D). Removal of the driveway is necessary due to the realignment of the Cowenton Avenue Bridge over I-95 and removal of impervious surface. This driveway is not currently used or planned for use by the park. The private driveway is located approximately 150 feet east of the recently constructed entrance to the park. The County property line runs down the middle of the driveway, with half of the driveway being owned by the County, and half the driveway being owned by a private landowner. Following removal of the private drive, the land currently owned by the County would remain under County ownership.

The impacts to Linover Park and Cowenton Avenue Park do not constitute "use" under Section 4(f) of the U.S. Department of Transportation Act of 1966 because the temporary occupancies:

- Will be of short duration and less than the time needed for construction of the project;
- Will not affect the ownership of the land (Baltimore County Department of Recreation and Parks will retain ownership of the areas) or result in the retention of long-term or indefinite interests in these properties for transportation purposes other than hiking or biking;
- Will not result in any temporary or permanent adverse change to the activities or features which are important to the purpose or function that qualifies the resources for protection under 4(f); and
- Will include a minor amount of land.
- Will result in land being restored to a condition that is at least as good as that which existed prior to the project.

E. Secondary and Cumulative Effects Analysis (SCEA) Summary

The SCEA used a geographic boundary and temporal limits to evaluate impacts to socio-economic, cultural, and natural environmental resources. The SCEA boundary was determined by overlaying a combination of individual socio-economic and natural resource sub-boundaries. In general, the other SCEA sub-boundaries maintain a reasonable proximity to the Area of Traffic Influence boundary, but also include portions of the census tract and sub-watershed boundaries.

A time frame of 55 years was selected for the SCEA (1970-2025). This time frame was chosen after reviewing historical events that took place in the project area, changes in population growth, availability of data, and the design year of the project.

There is no known development dependent on Section 100 therefore there are no secondary impacts associated with development. Land use is not anticipated to change substantially in the SCEA boundary within Baltimore City due to the Preferred Alternate. Land use within the City limits consists mainly of urbanized areas, and future development would concentrate on revitalization.

The Preferred Alternate will have a secondary effect on the growth rate of residential development Harford County and eastern Baltimore County. The Preferred Alternate would actually accommodate a slower growth rate than the General Purpose Lanes Alternate; therefore, secondary impacts associated with the growth rate would be minimal.

There will be secondary and cumulative impacts to several of the resources outline in the SCEA, including surface water/aquatic habitat, forest/terrestrial habitat, floodplains, wetlands, and archeological resources. Secondary and cumulative effects to natural resources will be adverse. However, any cumulative impacts to these resources will be regulated by applicable State, Local, and Federal laws for avoidance, minimization and/or mitigation. Secondary and cumulative impacts to community resources will be minimal because future impacts to communities would be directly related to local and regional growth, which is slower with the Preferred Alternate.

It is concluded that the Preferred Alternate will have direct, secondary and cumulative effects on socio-economic, cultural, and natural environmental resources. There will not be any secondary impacts related to development associated with the Preferred Alternate and all secondary and cumulative impacts to natural resources will be minimized by existing environmental regulations.

IV. STATUS OF COMPLIANCE WITH REGULATORY REQUIREMENTS

1. Section 4(f)

The Preferred Alternate would not result in a use of any Section 4(f) properties; however portions of Linover Park and Cowenton Avenue Park would be temporarily impacted during the construction of the project. The access to Linover Park is necessary to provide enhancements to Stemmers Run, and would include stream relocation and stabilization, bio-engineered slope stabilization, grading inside meander bends to provide floodplain access, and riparian and wetland plantings. The temporary occupancy of the Cowenton Avenue Park is necessary due to the realignment of the Cowenton Avenue Bridge over I-95, and would involve removal of a private driveway. The Authority has received concurrence from Baltimore County that the proposed actions would not have any adverse effects on Linover or Cowenton Avenue Parks (Appendix D). No further Section 4(f) coordination is required.

2. Section 106 of the Historic Preservation Act

The State Historic Preservation Officer (SHPO) has determined that one historic site is eligible for listing in the National Register of Historic Places (NRHP) is located within the Area of Potential Effect (APE). This site, a residence located at 11204 Lilac Lane referred to as the Koch property, is an example of a stone residence likely dating to the early-to-mid-nineteenth century. The Preferred Alternate will have no adverse effects on this or any other historic sites (Appendix D).

3. Nongame and Endangered Species Conservation Act

Correspondence concerning State-listed threatened or endangered species with the Maryland Department of Natural Resources (DNR) indicated the presence and location of a Least Tern (*Sterna antillarum*) and the potential presence of four plant species of concern within the study area. Field habitat surveys conducted during the Summer of 2004 indicated that the habitat of the Least Tern would not be affected by the Preferred Alternate and identified no State species of concern within the study area. Except for the occasional transient individuals, no federally proposed, listed endangered or threatened species are known to exist within the study area.

4. Section 404 of the Clean Water Act

The Preferred Alternate will impact Waters of the United States, including wetlands. Based upon these impacts, Section 404 of the Clean Water Act requires the Authority to obtain a permit from the United States Army Corps of Engineers (USACE). The USACE has actively participated in the NEPA and project planning process as a cooperating agency. The Authority will file a permit application with the USACE to obtain the required Section 404 permit after completion of the NEPA process. It is anticipated that the USACE will comply with NEPA and Section 404 requirements in making its permit decision.

The Authority and the USACE has developed design criteria (See Appendix F) in order to protect streams and wetlands and minimize the need for permit modifications during the design and construction phases of the Section 100 project. As the project moves into design and construction phases, if design modifications do occur, the Authority will coordinate with the USACE to determine environmentally friendly measures to address the modifications.

V. SUMMARY OF PUBLIC INVOLVEMENT

As a function of "Maryland's Streamlined Environmental and Regulatory Process" and to gather input from and inform citizens within the project area, the Authority held and participated in a variety of public involvement activities.

1. Alternates Public Workshop

The Authority held an Alternates Public Workshop on November 18, 2003 at the Perry Hall Middle School. The purpose of the workshop was to acquaint the public with the need for the project and present the status of the Section 100 Project as of that date. At the workshop, the preliminary alternates were introduced. These alternates included the No-Build Alternate, the General Purpose Lanes Alternate, and the Managed Lanes Alternate. A preliminary assessment of environmental impacts associated with each of these alternates was also presented.

The public input generated as a result of the public workshop was reviewed by the project team and, where appropriate, incorporated into the development of the Alternates Retained for Detailed Study (ARDS).

2. Focus Groups

A fifteen-member Focus Group, comprised of local residents, community leaders, and business owners, was formed in Fall 2003 to provide an opportunity for the public to provide input and comments on a variety of issues related to the Section 100 project, including purpose and need, alternates under consideration, and potential environmental impacts.

A total of six Focus Group Meetings were held during development and refinement of alternates.

- September 11, 2003 - Background information on the I-95 Master Plan was presented, the Section 100 Project was introduced, and possible options for the project were discussed.

- September 30, 2003 - The project team presented their initial designs for both the General Purpose Lanes and Managed Lanes Alternates.

- October 27, 2003 - The project team proposed the elimination of the collector-distributor (C-D) lanes based on results of additional traffic and engineering analyses. The Focus Group agreed that the C-D lanes should be eliminated from further analysis, as they would not improve the alternates' ability to meet the project needs, would not provide the originally intended function, and would increase natural environmental, cultural, and socioeconomic impacts.

- February 24, 2004 - During this meeting, the General Purpose Lanes and Managed Lanes Alternates (without C-D lanes) were presented, along with the preferred interchange options. The presentation included examples of computer-generated three-dimensional (3D) images that could be used to graphically display the alternates at the Summer 2004 Public Hearing.

- April 27, 2004 - A fifth Focus Group Meeting was held to present the results of the additional detailed engineering and environmental studies, and gather additional input on the upcoming Public Hearing.

- June 8, 2004 - A sixth Focus Group Meeting was held to present and gather input and feedback on the displays to be viewed at the Public Hearing.

3. Public Hearing

The Authority held a Public Hearing on June 29, 2004 at the Perry Hall Middle School. As part of the Hearing, Authority staff presented displays, including a display that specifically addressed ETLs, and distributed literature and information addressing the Section 100 project. The purpose of the Public Hearing was to provide information on the project and allow all interested persons the opportunity to present their views regarding the proposed location and general design of the project alternates, as well as the associated social, economic and natural environmental effects. The main issues raised by the comments included:

- Noise issues along the entire portion of Section 100;
- Noted support for new transit initiatives within the study area.
- Concerns that the improvements would decrease safety of the roadway;
- Support for Alternate 1: No-Build;
- Support for the Alternate 3: Managed Lanes.

4. Public Outreach

In addition to the Alternate Public Workshop and Public Hearing, the Authority participated in other public involvement activities. On June 23 and 27, 2004, the Authority staff handed out fliers and answered questions at the White Marsh Mall to advertise for and answer questions about the Public Hearing on June 29, 2004. On July 31, 2004 and October 2, 2004, Authority staff attended the Garden Village Community Festival and the Baltimore County Community Waterfront Festival, respectively, to answer questions concerning the Section 100 project.

Additional coordination with local officials and resource agencies has been undertaken to obtain data on parklands, emergency services, potential low-income and minority populations, wild and scenic rivers, and rare, threatened, and endangered species. The study team will continue to coordinate with local, State, and Federal resource and regulatory agencies throughout the remaining planning stages of this project. Copies of that correspondence are provided in Appendix C of the Environmental Assessment document prepared for this project. The Public Hearing transcript, as well as correspondence dated after the issuance of the EA, is included in Appendix G.