



Compensatory Mitigation Plan

PHASE II - I-95 ETL NORTHBOUND EXTENSION

Harford County, Maryland | JMT Project Number 17-10674-001

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1.0 INTRODUCTION

1.1 BACKGROUND

The Maryland Transportation Authority (MDTA) owns, operates, and maintains a 50-mile portion of Interstate 95 (I-95) in Maryland, beginning north of Baltimore City and extending to the Delaware state line. To address safety and congestion concerns, the MDTA proposes to construct the second phase of the Express Toll Lanes (ETL) Northbound Extension Section 200 Project in Harford County. This phase consists of roadway improvements along I-95 from north of Old Joppa Road to Bynum Run, as well as installation of fiber optic lines and traffic cameras as part of the Intelligent Transportation System along I-95 from north of Old Joppa Road to Bynum Run and along MD 24 and MD 152 (**Appendix A, Figure 1**).

The MDTA prepared a Master Plan for I-95 to comprehensively identify long-range transportation needs. Phase II of the I-95 ETL Northbound Extension Project occurs within the footprint of planned improvements for the Master Plan's Section 200, which extends from New Forge Road to north of MD 22. An Environmental Assessment (EA) was prepared for Section 200 by the MDTA in 2007, with the ETL Alternative identified as the Preferred Alternative in 2008. A Finding of No Significant Impact (FONSI) was issued by the Federal Highway Administration in 2010. A subset of interim improvements (Phase II of the I-95 ETL Northbound Extension Project) is being advanced along northbound I-95 from north of Old Joppa Road to Bynum Run; it is anticipated that the full Section 200 build out will be completed in the future.

Phase II of the I-95 ETL Northbound Extension Section 200 Project has been divided into multiple construction contracts to be constructed between 2020 and 2027 (**Appendix A, Figure 2**). These construction contracts will consist of the following:

- MD 152 Interchange / I-95 NB ETL Two-Lane Extension / MD 152 Noise Wall / NB Auxiliary Lane to Winters Run & NB Winters Run Bridge (KH-3019);
- Clayton Road Overpass Reconstruction (KH-3022);
- MD 24 Interchange / Two-Lane ETL Extension / SB Winters Run Bridge (KH-3021);
- Abingdon Road Overpass (KH-3029);
- MD 24/MD 924 Park & Ride (KH-3023);
- I-95 NB ETL Extension to Bynum Run / Noise Wall on NB I-95 North of Abingdon Road (KH-3020);
- Noise Wall on SB I-95 South of Calvary Road (KH-3031);
- Noise Wall on SB I-95 at MD 24 / Woodsdale (KH-3030);
- MD 24 Northbound Auxiliary Lane from MD 924 Through Singer Road Intersection (KH-3040);
- Old Mountain Road Advance Utility Bore (KH-3032);
- DMS Relocation from Abingdon Road to Bynum Run (MR-3027/MR-3018);
- Willoughby Beach Tier II Mitigation and Days Cove Creek Forest Mitigation (KH-3036);
- Eccleston Mitigation (KH-3038); and
- MD 152 Park and Ride Relocation (KH-3043).

Previously, the mitigation project KH-3033 MD 7C Fish Passage (**Appendix A, Figure 1**) was proposed as part of the Section 200 Phase I project but was cancelled due to lack of property owner cooperation. However, at the time this project was cancelled, tree clearing (without grubbing) associated with utility relocation had

already been completed, resulting in impacts to resources. These impacts have been included in the Section 200 Phase II permit modification and will be mitigated for under this mitigation plan.

The MDTA is the applicant for the U.S. Army Corps of Engineers (USACE) and Maryland Department of the Environment (MDE) permits and will be the responsible party for providing compensatory mitigation for unavoidable impacts to wetlands and streams associated with the proposed project.

1.2 PURPOSE AND NEED FOR I-95 ETL PHASE II IMPROVEMENTS

The purpose of the proposed project is to address capacity and safety needs within this section of roadway and thereby improve access, mobility, and safety for local, regional, and inter-regional traffic, including passenger, freight, and transit vehicles.

Currently, the southbound lanes in this section operate at a traffic Level of Service D to E (near failing) during morning peak hours, and northbound lanes operate at a Level of Service E during peak evening hours. It is anticipated that hours of congestion within this segment of road will increase from the current total of less than 10 hours for the entire week to over 30 hours by 2030. By then, this section of I-95 is projected to operate at a Level of Service F (failing) during weekend peak hours. In addition, the Section 200 crash rate is approximately 12 percent higher than similar state-maintained highways, demonstrating a need for safety improvements.

2.0 NATURAL RESOURCES IMPACTED

The proposed project would result in unavoidable impacts to state and federally regulated aquatic resources, including wetlands and streams. Impacted wetlands and streams requiring mitigation are located within the Little Gunpowder Falls, Lower Winters Run, Haha Branch, Bynum Run, and Northeast River watersheds. Wetlands consist of palustrine emergent (PEM) wetlands, palustrine scrub-shrub (PSS) wetlands, palustrine forested (PFO) wetlands, and wetlands with few trees located beneath the surrounding forest canopy (PFO/PEM). The resources are mostly low to moderate quality; many are fed primarily by roadside runoff and can be considered to have been impacted to some extent by the adjacent presence of I-95. The impacted resources requiring mitigation and their functions and values are summarized in **Appendix B**.

Conservative impacts to aquatic resources were calculated in October 2019 based on the preliminary engineering limits of disturbance. Impacts have been recalculated for each of the past permit modifications; current impacts are based on the June 2024 JPA impacts.

Impacts requiring mitigation are summarized in **Tables 1 and 2** in **Section 3.1**; impacts to existing culverts, ephemeral streams, streams to be relocated on-site and in-kind, stream stabilization, and impacts from mitigation activities were not included in these totals, as they are anticipated to not require mitigation.

3.0 ELEMENTS OF THE COMPENSATORY MITIGATION PLAN

The following sections describe the 12 mitigation plan components required under the Compensatory Mitigation for Losses of Aquatic Resources Rule (2008 Rule)¹.

3.1 PROPOSED MITIGATION AND DETERMINATION OF CREDITS

USACE and MDE confirmed that the following mitigation credit ratios would apply for permanent impacts:

- Stream (intermittent and perennial) – 1 LF credit required per 1 LF stream impacted (1:1)
- PEM wetland – 1 SF credit required per 1 SF wetland impacted (1:1)
- PSS wetland – 2 SF credit required per 1 SF wetland impacted (2:1)
- PFO wetland – 2 SF credit required per 1 SF wetland impacted (2:1)
- PFO/PEM wetland – 2 SF credit required per 1 SF wetland impacted (2:1)
- PUB wetland – 1 SF credit required per 1 SF wetland impacted (1:1)

Mitigation totals are summarized in **Tables 1** and **2** below.

Table 1: Wetland Mitigation Required

Wetland Impacts Requiring Mitigation			Mitigation Ratio	Required Mitigation	
Cover Type	(SF)	(AC)		(SF)	(AC)
USACE					
PEM	50,969	1.17	1:1	50,969	1.17
PSS	7,563	0.17	2:1	15,126	0.35
PFO	175,163	4.02	2:1	350,326	8.04
PFO/PEM	3,187	0.07	2:1	6,374	0.15
PUB	0	0.00	1:1	0	0.00
USACE TOTAL	236,882	5.44	N/A	422,795	9.71
MDE					
PEM	51,189	1.18	1:1	51,189	1.18
PSS	7,733	0.18	2:1	15,466	0.36
PFO	177,180	4.07	2:1	354,360	8.13
PFO/PEM	3,187	0.07	2:1	6,374	0.15
PUB	0	0.00	1:1	0	0.00
MDE TOTAL	239,289	5.49	N/A	427,389	9.81

¹ Department of Defense and Environmental Protection Agency. April 10, 2008. *Compensatory Mitigation for Losses of Aquatic Resources*. Final Rule. Federal Register. Vol. 73, No. 70: pp. 19594-19705. Retrieved from https://www.epa.gov/sites/production/files/2015-03/documents/2008_04_10_wetlands_wetlands_mitigation_final_rule_4_10_08.pdf

Table 2: Stream Mitigation Required

Stream Impacts Requiring Mitigation			Mitigation Ratio	Required Mitigation	
Flow	(LF)	(SF)		(LF)	(SF)
USACE					
Perennial	4,085	50,439	1:1	4,085	50,439
Intermittent	5,658	35,643	1:1	5,658	35,643
Ephemeral	0	0	1:1	0	0
USACE TOTAL	9,743	86,082	N/A	9,743	86,082
MDE					
Perennial	4,085	50,439	1:1	4,085	50,439
Intermittent	5,658	35,643	1:1	5,658	35,643
MDE TOTAL	9,743	86,082	N/A	9,743	86,082

MDTA proposes to fulfill mitigation requirements through a package consisting of several sites. These sites are summarized within **Table 3** and shown on **Appendix A, Figure 3**.

Table 3: Proposed Mitigation Package

Mitigation Site	Stream Mitigation Credits	Wetland Mitigation Credits	
	LF	SF	AC
Carsins Run	188	100	0.002
Jones Falls (Eccleston Site)	7,856	427,289	9.809
HT-3012 Patapsco River	1,699	0	0.000
Totals	9,743	427,389	9.812

Plans and design reports for HT-3012, Carsins Run, and Eccleston are included in **Appendices C, D, and E**, respectively.

Impacts associated with the HT-3012 and Carsins Run construction are not included in the I-95 ETL Phase II JPA, as they have already been approved and constructed under other permits.

Wetland Mitigation Credits

As part of the Carsins Run stream restoration, MDTA created 5,440 SF of wetlands incidentally. Of this credit, 3,446 SF of this creation was needed to offset wetland loss caused by stream restoration. After subtracting that amount, approximately 1,994 SF of wetland creation remains. MDTA proposed a wetland mitigation credit ratio of 1:1 for these constructed wetlands. However, in Year 3, MDE determined that only 100 SF of the created wetland credits are functioning as designed; therefore, proposed credits at Carsins Run have been adjusted accordingly. Please see the MDE comment letter in **Appendix D**. The design report and as-built plans can also be found in **Appendix D**.

MDTA is not proposing to satisfy wetland mitigation requirements for Section 200 Phase II through HT-3012. However, created wetlands on site were utilized to offset impacts to on-site wetlands associated with the restoration construction activities, as outlined in the HT-3012 MDE and USACE permits. Additionally, a subset of created wetland credit at the site has been utilized by MDTA for several drainage repairs within the same 8-digit watershed, as outlined in a previously approved Advanced Mitigation Plan.

MDTA proposes to satisfy the majority of the Section 200 Phase II wetland mitigation requirements through credits at the Eccleston mitigation site in Owings Mills, Maryland. Wetland mitigation at this site includes wetland restoration (creation), wetland enhancement, and wetland preservation. Wetland mitigation credits will be obtained from these activities at ratios of 1:1, 1:3, and 1:10, respectively; see Appendix B of the revised Eccleston design report in **Appendix E** for a detailed breakdown of the proposed credits.

Excess wetland mitigation credits at Eccleston will also be used for Section 200 Phase I. See **Table 4** below for a detailed breakdown of proposed credit use at the Eccleston mitigation site. Between the Eccleston and Whitemarsh Run mitigation sites, enough wetland mitigation credit is available to satisfy the mitigation requirements for Section 200 Phase I, including the overall No Net Loss of wetlands requirement, and still have surplus credits available at Eccleston to satisfy Phase II. The Section 200 Phase I mitigation credit need was derived from the Section 200 Phase I 2021 permit modification (see the Eccleston Credit Ledger in **Appendix E**).

Table 4: Proposed Wetland Mitigation Credit Allocation at Eccleston

Mitigation Site	Mitigation Type	Mitigation Credits Created* (SF)	Section 200 Phase I Credits* (SF)	Surplus Mitigation Credits After Section 200 Phase I (SF)	Section 200 Phase II Credits* (SF)	Surplus Mitigation Credits After Section 200 Phase II (SF)
Eccleston	Wetland Restoration (Creation)	568,022	48,902	519,120	355,720	163,400
	Wetland Enhancement	46,609	0	46,609	46,609	0
	Wetland Preservation	24,960	0	24,960	24,960	0
	<i>Total</i>	<i>639,591</i>	<i>48,902</i>	<i>590,689</i>	<i>427,289</i>	<i>163,400</i>
Whitemarsh Run	Wetland Creation	63,926**	63,926	0	NA	NA
	Wetland Preservation	90,523**	83,380	7,143	NA	NA
	<i>Total</i>	<i>154,449</i>	<i>147,306</i>	<i>7,143</i>	<i>NA</i>	<i>NA</i>
Total		794,040	196,208	597,832	427,289	163,400

*Note: In the event of a discrepancy between these numbers and the Phase II Approval Letters for Section 200 Phase I or II, the Phase II Approval Letters shall govern.

**Note: Whitemarsh Run was created as mitigation for Section 100; credits already utilized for Section 100 impacts are not included in these totals.

Stream Mitigation Credits

MDTA restored 2,051 LF of an unnamed tributary to the Patapsco River at HT-3012; however, MDTA is not seeking credit for portions of the project where riprap placement and pre-formed scour hole creation were necessary to dissipate energy from high flows discharging from existing outfalls on site. Credit is not being requested for such restoration areas due to the lack of expected aquatic habitat improvements and potential future remedial needs adjacent to culvert inlets and outfalls. Additionally, Baltimore County is proposing to install a sanitary sewer crossing beneath the mitigation site, and will be placing a 40-foot-wide easement in that location. MDTA proposes a mitigation credit ratio of 1:1 for the remaining 1,699 LF.

MDTA restored approximately 188 LF along Carsins Run and 844 LF along its Ripken Tributary; however, MDTA is not seeking mitigation credit for the 40 LF of stream restoration completed on City of Aberdeen property. MDTA proposed a mitigation credit ratio of 1:1 for the remaining 992 LF of restoration. However, in Year 3, MDE determined that, while the Tributary has been stabilized and has stopped erosion at the upstream wetland, the stability improvements are not enough to satisfy the ecological uplift required for stream mitigation credit. Therefore, only credits for the Carsins Run mainstem are still proposed. Please see the MDE comment letter in **Appendix D**.

MDTA proposes to satisfy the remainder of the Section 200 Phase II stream mitigation requirements through credits at the Eccleston mitigation site. Credits will be generated through stream restoration, stream creation, stream preservation, and stream buffer enhancement along Jones Falls and tributaries at the Eccleston Mitigation Site, at mitigation credit ratios of 1:1, 5:1, 10:1, and 4:1, respectively; see Appendix B of the revised Eccleston design report in **Appendix E** for a detailed breakdown of the proposed credits.

Excess stream mitigation credits at Eccleston will also be used for Section 200 Phase I. See **Table 5** below for a detailed breakdown of proposed stream credit use at the Eccleston mitigation site. Between the Eccleston and WUS 18A mitigation sites, enough stream mitigation credit will be created to satisfy the mitigation requirements for Section 200 Phase I and still have surplus credits available to satisfy Phase II. The Section 200 Phase I mitigation credit need was derived from the Section 200 Phase I 2021 permit modification (see the Eccleston Credit Ledger in **Appendix E**).

Table 5: Proposed Stream Mitigation Credit Allocation at Eccleston

Mitigation Site	Mitigation Credits Created* (LF)	Section 200 Phase I Credits* (LF)	Surplus Mitigation Credits After Section 200 Phase I (LF)	Section 200 Phase II Credits* (LF)	Surplus Mitigation Credits After Section 200 Phase II (LF)
Eccleston	9,732	1,823	7,909	7,856	53
WUS 18A	630	630	0	0	0
Total	10,362	2,453	7,909	7,856	53

*Note: In the event of a discrepancy between these numbers and the Phase II Approval Letters for Section 200 Phase I or II, the Phase II Approval Letters shall govern.

Wetland and stream credits remaining at Eccleston after Section 200 Phase I and II's mitigation needs have been satisfied will be utilized by future MDTA projects, including the ultimate buildout of Section 200 and Section 300 of Interstate 95 within the Gunpowder-Patapsco watershed. Additionally, MDTA proposes to use excess credits for unforeseen maintenance activities that may become necessary along I-95 within the Gunpowder-Patapsco watershed. Activities that may require wetland mitigation include, but are not limited to, roadway widening, interchange reconfigurations, reconstruction of overpasses, installation of facilities to meet water quality requirements, and routine maintenance or repair of existing assets such as culverts and outfalls.

3.2 OBJECTIVES AND PROJECT DESCRIPTIONS

HT-3012

The MDTA performed stream restoration in Baltimore County, Maryland, within the Patapsco River watershed, along an unnamed tributary to the Patapsco River (**Appendix C, Figure 4**). HT-3012 is located approximately 100 feet north of I-895, Harbor Tunnel Throughway. The project limits start at MDTA's culvert BY052X01, then extends upstream to a culvert under MD 648. The existing downstream culvert, a dual 60-inch corrugated metal pipe culvert located within a highly-urbanized watershed, was prone to inlet clogging by trash as well as woody debris and sediment originating from the immediate upstream channel and floodplain. This culvert inlet build-up caused excessive backwater during storm events. Since the culvert conveys stream flow below an MTA light-rail track, its stability is a high priority. The key objectives of the stream restoration were to stabilize upstream conditions within MDTA right-of-way as well as provide a self-sustaining stream and riparian system that is resilient, reestablishes a natural valley bottom ecosystem, and promotes improved biological and ecological functions.

Prior to restoration, the unnamed tributary exhibited little bedform diversity, had deeply incised banks, lacked any significant sinuosity, and lacked floodplain connection due to over-widening of the channel. Flow in the upper reach of the tributary appeared to be subterranean through several sections due to sediment aggradation within the channel. Also, several large trees had collapsed into the channel due to bank erosion, while several more showed risk of falling if erosion continued. The vegetative cover at the site was a mix of trees and a poor understory that had limited to no shrubs. Observed herbaceous ground cover was predominantly invasive.

During 2020-2021, MDTA restored approximately 2,051 LF along the unnamed tributary, providing 1,699 LF of stream mitigation credit after excluding the length of pre-formed scour hole areas and the proposed Baltimore County sewer easement. Primary objectives included sediment and nutrient reduction, floodplain reconnection, and aquatic habitat improvement. The stream restoration activities conducted at HT-3012 included increasing channel sinuosity, adding riffle and other grade control structures, and planting on-site native herbaceous and woody vegetation. The foundation of the proposed design for the unnamed tributary was based on the supporting premise of the Stream Functions Pyramid, which states that lower functions of the Pyramid support and form the foundation for higher level functions. If a proposed restoration project cannot or can only partially improve the hydrology, hydraulics and geomorphology, higher chemical and biological functions may only be supported for a brief period of time or may never become established at all. Given the restoration's focus on hydrological, hydraulic, and geomorphology improvements, significant functional uplift of the stream and its associated floodplain was provided in conjunction with high density

native tree and shrub plantings and invasive species removal. Aquatic habitat improvements resulting from the restoration include increased benthic habitat, enhanced floodplain connection and wetland creation, floodplain microtopography creation, and improved and expanded native riparian buffer habitat. The design plans and report for HT-3012 are included in **Appendix C**.

Carsins Run

The MDTA performed stream restoration in Aberdeen, Maryland, within the Swan Creek watershed, along Carsins Run and its tributary (**Appendix A, Figure 5**). Carsins Run is a stream located within MDTA right-of-way just north of the I-95/MD 22 interchange and west of I-95, within Section 200 but outside of the I-95 ETL Phase II project area. At the time that I-95 was originally built, Carsins Run was channelized and given a concrete substrate. Subsequently, the bottom of the concrete channel washed out, and portions of the concrete bank failed. In addition, an intermittent unnamed tributary to Carsins Run, referred to as Ripken Tributary, was actively eroding both vertically and laterally, likely due to altered hydrology resulting from the nearby Ripken Stadium development.

MDTA restored approximately 188 LF along Carsins Run, resulting in 188 LF of stream mitigation credit and 100 SF of wetland mitigation credit. The objectives of the compensatory mitigation included stream stabilization, sediment and nutrient reduction, floodplain reconnection, and aquatic habitat improvement. The stream restoration activities within Carsins Run included removing the existing concrete substrate, adding weir structures and riffle grade controls, planting live stakes along the banks, and replacing a failed storm drain. Within the Ripken Tributary, MDTA realigned the stream, reconnected it to its floodplain, created riffles and deep pools, and enhanced riparian vegetation. The as-built design plans and report for Carsins Run are included in **Appendix D**.

Jones Falls (Eccleston Mitigation Site)

The Eccleston mitigation site is located within the Jones Falls watershed in Owings Mills, Maryland (**Appendix A, Figure 6**). MDTA has purchased wetland and stream mitigation credits from NextEra Energy Marketing, who has performed turn-key permittee-responsible stream and wetland mitigation along Jones Falls; wetland mitigation credits total 639,591 SF, derived from a combination of wetland restoration (creation), enhancement, and preservation. Stream mitigation credits total 9,732 LF, derived from a combination of stream restoration, preservation, and creation, as well as stream buffer enhancement. Of these credits, 427,289 SF of wetland credit and 7,856 LF of stream credit are being utilized for Section 200 Phase II. Construction was completed in 2022.

The Jones Falls and its tributaries had been straightened/channelized, impounded by damming, and diverted through piping. The stream buffer had been largely deforested, and much of the historical wetland that was present on the site was impacted by historic agricultural activities. These historic activities led to water quality and habitat impairments resulting from sediment and nutrient pollution, diversion of baseflow, loss of canopy and stream cover, and disconnection from historic base-level floodplain, wetlands, and groundwater.

While wetlands existed within the Eccleston site, those within the restoration area were small, largely isolated from each other, and predominantly supported by a perched aquifer, hillside seeps or surface run-off from

cultivated fields. Due to the high elevation of the previous floodplain, these wetlands were not hydraulically or hydrologically well-connected to the Jones Falls and provided little to no processing of fine sediment and nutrients transported by the active channel. They offered limited diversity of flora and fauna, and limited capacity for meaningful biochemical processing of runoff which would benefit the adjacent Jones Falls fishery. As a result of these factors, the majority of the previously existing wetlands within the restoration area performed limited functions and values.

The stream restoration design was a modified Rosgen/floodplain restoration approach. The methodology utilized both present day and historical references, as well as historic site soils, to meet top-level physiochemical and biological goals for the project. The streambed profile was located within the native valley basal gravels identified throughout the valley bottom, and furnished substrates of geologically appropriate composition and size were utilized in the event of a lack of native material or where needed for transitional reaches. A hydrologic and hydraulic regime was created where the stream is fully connected to restored floodplain wetlands and floods frequently in a non-erosive manner in order to maintain geomorphic and biological functions. A low-energy floodplain/wetland environment has been developed, along with a diversity of woody habitat and debris structures both in the channel and in the floodplain for habitat. In addition, extensive reforestation and wetland restoration have resulted in establishment of vegetated stream buffers an average of 150 feet wide.

The floodplain restoration approach also resulted in wetland enhancement and restoration. The floodplain was regraded to expose a hydric soil layer connected to the groundwater table, which was buried by silt accumulation behind historic dams. This method restored historic floodplain wetlands and enhanced the previously existing isolated wetlands by incorporating them into a large wetland complex, a complex that has been well-connected to the Jones Falls, its tributaries, and groundwater. Additionally, placement of woody debris and creation of microtopography within the wetlands has improved habitat functions, including creation of vernal pool features. Further wetland enhancement is being accomplished through removal of invasive species.

Previously existing high quality forested and emergent wetlands located in the less historically impacted portions of the Eccleston site are being preserved through a perpetual easement; these wetlands have mature trees, varied hydrology, and contain sensitive species such as wood frogs. They also provide riparian buffers for existing high-quality stream reaches that contain trout throughout the year. The preserved wetlands have functions and values which could not be easily replicated in a restored wetland within a ten-year monitoring framework. Additionally, preservation, though a passive mitigation practice, has a direct impact on the success of neighboring enhancement and restoration activities. They provide refugia for species which may be temporarily displaced during construction and impacts to other existing wetlands and buffer areas. They additionally serve to provide a native species seed source adjacent to restored and enhanced areas to facilitate the repopulation of native species. While the restored and enhanced areas are proposed to be planted, natural recruitment of trees and wetland plants is also important to the success of these areas.

The mitigation activities at Eccleston have enhanced previously existing low-to-moderate quality wetlands to become high quality wetlands; restored/recreated historic high-quality wetlands; and preserved existing high-quality wetlands. By comparison, the resources impacted by the I-95 ETL highway work are primarily of low

or moderate quality. Credit types will be allocated for impacts in a manner that ensures that No Net Loss is met as well as meeting the required mitigation ratios based on impacted resource cover type. MDTA proposes that the proposed wetland mitigation at Eccleston provides substantial functional uplift compared to the impacted resources.

The design plans and report for Eccleston are included in **Appendix E**.

3.3 SITE SELECTION

MDTA performed a mitigation site search to compensate for wetland and stream impacts associated with the original I-95 ETL Section 200 program as well as the Phase II authorization. Mitigation site search efforts spanned from 2009 (during the NEPA phase) through 2020. Over 25 mitigation sites (not counting investigation of intermittent and perennial concrete-lined channels for potential restoration) were reviewed and considered during the process, only three of which were suitable for the needs of Phase II of the I-95 ETL Program. The mitigation site search followed the priority parameters required by the 2008 Final Mitigation Rule, which dictates that available mitigation banking credits, followed by on-site mitigation, be preferred over off-site mitigation projects. At the time of the site search, no mitigation bank credits were available in the 8-digit HUC watershed (Gunpowder-Patapsco, #02060003). Mitigation within the immediate project area was not found to be feasible, although the Carsins Run site is located within Section 200 and is included within the mitigation package. Per the 2008 Rule, in the absence of an approved mitigation bank or potential for on-site mitigation, compensatory mitigation within the same 8-digit HUC watershed for any unavoidable impacts is to be prioritized. HT-3012 and Eccleston, the proposed off-site mitigation sites, are located within the Gunpowder-Patapsco watershed, which is the same 8-digit HUC watershed as the impacts.

2009 Mitigation Site Search

A mitigation site search was initiated in 2009 for the Section 200 ultimate build-out and viable sites identified during this search were revisited for Phase II of the I-95 ETL program. This mitigation site search was conducted using GIS, aerial imagery, and field reviews. MDTA also coordinated with multiple agencies for aid in identification of existing opportunities, field reconnaissance, and assessment of sites; those agencies included USACE, MDE, the Environmental Protection Agency (EPA), the US Department of Agriculture, the US Fish and Wildlife Service, the National Marine Fisheries Service, and the Harford County Departments of Planning and Public Works.

Potential on-site mitigation was identified and prioritized. On-site mitigation included perennial and intermittent concrete-lined systems within Section 200 that were identified for replacement with naturalized channels. Of these previously identified concrete-lined systems, only WUS 25B is located within the current project extents and would be feasible for naturalization. However, this stream was reviewed with MDE and USACE during the Phase II pre-application meeting. At that time, MDE and USACE determined that WUS 25B was not a high priority for mitigation, since the stream appears to not provide habitat for fish, is stable in its current condition, and does not have much potential for increased sinuosity.

The mitigation site search also identified stream mitigation at Carsins Run, Grays Run, and Winters Run, all of which were considered on-site mitigation due to their locations within the limits of Section 200. Of these sites, only Carsins Run remained feasible. Carsins Run is included in this mitigation package.

Previously proposed mitigation at Winters Run consisted of relocation of bridge piers outside of Winters Run while replacing the existing structure carrying I-95 over that stream, as well as removal of concrete from the stream banks and floodplain. However, as the ETL program progressed, it was determined that the northbound bridge could be rehabilitated and widened instead of requiring complete replacement. This more economical solution retained the existing northbound piers and required that the new piers for northbound bridge widening as well as southbound bridge replacement be constructed in the same alignment. Additionally, concrete removal could jeopardize the existing bridge abutments and Winters Run Road/Fashion Way. Restoration downstream of the project was determined to not be reasonable or feasible due to access issues, as well as the potential for impacts to other sensitive resources, including wetlands and designation of locally protected lands. Feedback from MDE and USACE indicated that stream restoration efforts at this site were not preferred.

Grays Run is also not being pursued due to large portions of the site being located on private property. Any mitigation effort requiring acquisition of right-of-way would not be able to meet the accelerated I-95 ETL Northbound Extension project schedule. In addition, State and Federal authorizations require placement of a Declaration of Restrictive Covenants on compensatory mitigation sites. Many landowners are unwilling to encumber their properties due to how it affects the resale value.

Off-site private property mitigation opportunities identified at the Gonzalez, Fielder, Schenning and Pollard properties were not pursued due to these time constraints as well as other factors such as transfer of property ownership, property owners changing their mind about moving forward with the mitigation, and determination of unsuitability after further consideration by agency reviewers.

Restoration of fish passage was considered at culverts conveying both James Run and Bynum Run beneath Maryland 7 (MD 7) as well as stream restoration both upstream and downstream of the culverts. Coordination with Maryland Department of Natural Resources (MDNR) resulted in the stream restoration opportunities being discarded due to the lack of functional uplift as well as the disturbance that would be created through access. Coordination with Maryland State Highway Administration (SHA) resulted in the knowledge that SHA was replacing the culverts as part of their normal roadway preservation program. Additionally, Harford County was planning to replace a water line adjacent to southbound MD 7. These factors resulted in the sites being determined to be infeasible as mitigation.

I-95 ETL Section 200 Phase II Supplemental Site Search

WUS F-1 was identified as a potential onsite mitigation opportunity; it is a degraded stream located on the former Izaak Walton League property, which was purchased by MDTA to allow construction of the MD 24/MD 924 Park and Ride facility. Debris, apparently deposited prior to the Clean Water Act, can be observed within the stream, including shingles and concrete, and portions of the stream embankment are unstable. However, site constraints, including a sewer line, narrow stream valley, and close proximity to adjacent properties, limit the quality of mitigation that could be accomplished at this location. In addition, it is unknown what hazards

the previously deposited materials may pose to workers. Therefore, the MDTA has decided not to pursue mitigation at this location.

Whitemarsh Run is another MDTA-owned site and was discussed as a potential source of wetland mitigation credit since excess wetland credits were created there as part of Section 100 mitigation. However, the majority of credits created at this site have been exhausted by Section 100 and Phase I of the I-95 ETL Northbound Extension Project; therefore, it was determined that insufficient additional wetland credits remain at this site to include in the Phase II mitigation package.

The MDTA reached out to Harford County, DNR, and USACE for potential mitigation sites. DNR identified the Piney Run mitigation site in Carroll County, which was considered for inclusion as part of the current mitigation package. However, due to extensive encumbrance by an existing sewer line and the presence of historically dumped coal ash, USACE determined that the Piney Run site would not provide viable mitigation.

USACE identified the Lilly Run stream restoration sites during the mitigation site search for Phase I of I-95 ETL Northbound Extension Project. All four phases of Lilly Run are high priority for the City of Havre de Grace, due to ongoing flooding concerns; therefore, all phases of Lilly Run were proposed to be completed to fulfill a portion of the compensatory mitigation required for Phase II of the I-95 Northbound Extension Project. However, when MDTA pursued mitigation at Lilly Run, the site was ultimately found to be infeasible due to multiple constraints, including inability to identify property owners despite an extensive search; hazardous soil contamination; Program Open Space impacts; and Norfolk Southern railroad property requirements.

In 2019, MDTA reached out to Harford County's Watershed Protection and Restoration Office to determine if there were any opportunities to partner with the County on wetland and stream restoration projects. Small Watershed Action Plans were reviewed to identify suitable projects and approximately 12 sites were identified. Through the coordination, MDTA learned that the priority sites had already been completed and the remaining sites could not be pursued due to property ownership and other logistical considerations.

In 2020, MDTA reached out to Baltimore County's Department of Environmental Protection and Sustainability to determine if there were any opportunities to partner with the County on wetland and stream restoration projects. MDTA was informed that the County was reserving all potential sites to meet TMDL requirements.

In 2017, MDTA identified the HT-3012 site along an unnamed tributary to the Patapsco River on MDTA right-of-way as a potential stream restoration site given stability and infrastructure protection concerns; sediment and debris blockages to a downstream culvert threatened an MTA light rail embankment. Given combined concerns regarding the channel's stability, water quality functions, and ecological value, MDTA elected to undertake restoration of the stream for both stability improvement and functional uplift. Due to the resulting water quality and ecological benefits of the project, its location within the same HUC-8 federal watershed as the Section 200 program, and the time constraints presented by the loss of Lilly Run so late in the project schedule, MDTA proposes to utilize HT-3012 as a compensatory mitigation site for Section 200 Phase II.

The final portion of the Phase II mitigation package, the Eccleston site, is a privately owned permittee-responsible site at which MDTA is purchasing wetland and stream credits. The site is located within the

Gunpowder-Patapsco watershed and consists of a large-scale restoration of an upper-watershed, heavily agriculture-impacted portion of Jones Falls and its floodplain, as well as preservation of adjacent high-quality wetlands and stream. The mitigation includes restoration of multiple first-order tributaries, significant second- and third-order tributaries, and substantial quantities of floodplain wetlands. Restoration of one large, cohesive system is generally considered to result in greater ecological lift than restoration of several smaller, disconnected sites; this is part of the reasoning behind agency preference for the establishment of mitigation banks. In the absence of available mitigation bank credit within the Gunpowder-Patapsco watershed, the Eccleston Site provides a similar opportunity.

In addition, the Eccleston Site's location within the upper portion of the watershed is advantageous, as restoration at the site has not only improved water quality onsite but also will contribute to improved water quality downstream. The Eccleston project addresses the decline of the upper reaches of the Jones Falls, a cold-water brown trout fishery which has been studied by DNR and others since the 1980s. DNR has utilized trout from the Eccleston site for collection of roe and distribution of stocked fish throughout the state. The fishery has been in decline and had fewer trout and more warm water species intrusion. The stream also has the distinction of being the only trout stream that flows into the limits of Baltimore City. The Eccleston site provides some of the spawning grounds for that trout population, which will be protected in perpetuity through an easement held by a non-profit entity.

3.4 SITE PROTECTION INSTRUMENT

The Eccleston Site has been protected by a conservation easement held by a third party, the North American Land Trust, as approved by USACE. The conservation easement states that "Grantor also represents and warrants that the Conservation Area is free and clear of any and all liens, loans, claims, restrictions, easements, encumbrances or other interests that may conflict or are inconsistent with this Conservation Easement, as documented in the 60 Year Title Search [...] for which exceptions from coverage are described and cleared in the Compensatory Mitigation Plan." The Title Exceptions Explanation for Eccleston is included in **Appendix E**.

The Carsins Run mitigation site is located primarily on land owned by MDTA; the MDTA portion of the site has been protected under a Declaration of Restrictive Covenants. The remainder of the site does not count towards the mitigation credits and is not being placed under a protective instrument.

The HT-3012 mitigation site is located on MDTA right-of-way. The site will be protected under a Declaration of Restrictive Covenants.

3.5 BASELINE INFORMATION

Baseline information has been collected for HT-3012, Carsins Run, and Eccleston; see **Appendices C, D, and E**, respectively.

3.6 MITIGATION WORK PLAN

Detailed mitigation work plans for HT-3012, Carsins Run, and Eccleston can be found in **Appendices C, D, and E**, respectively.

3.7 MAINTENANCE PLAN

Maintenance plans for HT-3012 and Carsins Run can be found in their respective design reports in **Appendix C** and **Appendix D**. A detailed maintenance plan for Eccleston can be found in Appendix K of the revised Eccleston design report in **Appendix E**.

3.8 MONITORING REQUIREMENTS AND PERFORMANCE STANDARDS

Created wetlands at HT-3012, Carsins Run, and at Eccleston will be held to the October 30, 2020, wetland performance standards. Performance standards and monitoring requirements for wetlands and streams can be found in each site's respective design report, in **Appendices C, D, and E**. Revisions to the Eccleston monitoring plan can be found in the Revised Eccleston Monitoring Program Memorandum, also located in **Appendix E**. These revisions reflect recent discussions between MDTA, USACE, and MDE.

Monitoring at Carsins Run and HT-3012 will be performed by MDTA while monitoring at Eccleston will be performed by NextEra.

3.9 LONG-TERM MANAGEMENT PLAN

MDTA will be the responsible party for the long-term management of the compensatory mitigation sites at HT-3012 and Carsins Run. MDTA is committed to providing successful compensatory mitigation for impacts associated with the proposed improvements and will continue to monitor and manage the sites until they have not only met performance standards but also has been deemed to be self-sustaining.

The Eccleston mitigation site will be managed by the North American Land Trust. A long-term management plan is included in the revised Eccleston design report in **Appendix E**.

3.10 ADAPTIVE MANAGEMENT

Should unforeseen issues threaten the success of the mitigation sites, MDTA will implement adaptive management strategies at the Carsins Run and HT-3012 sites. NextEra will implement adaptive management at the Eccleston mitigation site until the site has been released from monitoring and has been deemed to be self-sustaining. Any necessary adaptive management following this point would be completed by North American Land Trust.

Potential issues could include erosion damage from extreme storm events during the vegetative establishment period and/or colonization of sites by invasive species triggering the need for adaptive management either during or after the required monitoring period. Monitoring reports comparing site-specific data with performance standards, in conjunction with observations made during data collection, will indicate the need to consider implementation of adaptive management. MDTA and/or NextEra will follow the following steps if monitoring data or observations indicate adaptive management is necessary:

- Notify USACE and MDE of the issues, potential causes and proposed solutions;

- Work with USACE and MDE to agree upon corrective measures and establish a timeframe for implementation;
- Implement corrective measures according to the established schedule; and
- Continue to implement corrective measures and monitoring until performance standards have been met.

3.11 FINANCIAL ASSURANCES

The MDTA, as a state agency, operates on a 5-year Transportation Improvement Program (TIP) cycle and has allocated \$1.1 billion as a specific line item in its TIP budget to construct Phases I and II of the I-95 ETL Northbound Extension Project (see **Appendix F**). The funding allocated for the project is inclusive of any compensatory mitigation, including required construction, monitoring, and long-term maintenance activities, for unavoidable impacts associated with the proposed improvements.