Critical Area Commission
STAFF REPORT

December 3, 2025

APPLICANT:	Maryland State Highway Administration
PROPOSAL:	Exhibit B1: State Highway Administration Technical Guidance Document for Mitigation Banks
JURISDICTION:	Maryland Department of Transportation- State Highway Administration
COMMISSION ACTION:	Vote
STAFF RECOMMENDATION:	Approval
STAFF:	Jonathan Coplin

APPLICABLE LAW/ REGULATIONS:

DISCUSSION

Maryland State Highway Administration (SHA) is seeking Commission approval of *Exhibit B1: State Highway Administration Technical Guidance Document for Mitigation Banks* (Technical Document) and its attachments. This Technical Document (Attachment A to this staff report) was developed jointly by SHA and Critical Area Commission (CAC) staff and establishes the framework for the creation and use of Critical Area Mitigation Banks. These banks will serve as an alternative method for SHA to satisfy mitigation requirements when on-site or traditional off-site planting options are not feasible.

Once approved, Exhibit B1 will become part of the Memorandum of Understanding between Maryland Department of Transportation and the CAC (MDOT MOU). Each Modal Administration (MA) has its own Exhibit within the MDOT MOU; SHA's exhibit is Exhibit A1. Exhibit B of the MDOT MOU provides a Model Mitigation Banking Program for each MA to follow. This Technical Document proposed for approval today will be Exhibit B1, as SHA is the first MA to propose mitigation banking guidance under the new MOU framework.

The Technical Document defines how mitigation banks will be identified, established, monitored, and credited. All mitigation banks and associated credit transactions will remain subject to CAC staff review and approval.

Background
SHA's transportation projects often occur within constrained corridors where onsite mitigation is limited by factors such as utilities and limited right-of-way, existing vegetation or infrastructure, safety considerations, and future roadway improvement needs When offsite mitigation

opportunities are also limited, SHA may face delays in meeting Critical Area mitigation obligations, which can postpone construction start dates and affect project schedules and funding. To address these recurring constraints, SHA is creating this Technical Document under Section 5.1 of the MDOT MOU, which authorizes the establishment of a mitigation bank program by the MA. This document develops a formal framework for creating and managing mitigation banks.

In 2024, SHA and CAC convened a workgroup of six CAC Commissioners (Tammy Roberson (MDE), Shawn Kiernan (MDOT), Catherine McCall (DNR), Rosa Hance (Member At-Large), Annie Richards (Kent County), and Mike Hewitt (St. Mary's County)) to address concerns regarding the establishment of future mitigation banks. The goal of this workgroup was to inform the Commissioners on the need for and benefits of mitigation banking and how parameters would be established regarding site selection, planting, and crediting. This workgroup subsequently helped SHA develop the framework needed to create this Technical Document.

Purpose and Need

Mitigation banks provide SHA with a proactive and predictable approach to meeting mitigation requirements for current and future projects. Key benefits include:

- Pre-determined mitigation sites and credits available before construction begins, reducing project delays;
- Immediate ecological benefits, such as habitat creation and water quality improvement; and
- Reduction in lag time between project impacts and mitigation completion.

SHA will follow a prioritization sequence for addressing mitigation needs before using banked credits:

1. Mitigate within the Critical Area, jurisdiction, and Maryland 8-Digit Watershed where the development is proposed.
2. Mitigate within the Critical Area on land owned by the respective jurisdiction where the development is proposed via executed agreement.
3. Mitigate within the Critical Area and County where the development is proposed.
4. Provide a fee-in-lieu payment to the respective jurisdiction to include site selection, planting plan development, and implementation.
5. Use approved mitigation banks.

Overview of *Exhibit B1: SHA Technical Guidance Document for Mitigation Banks*

SHA and CAC staff worked together to develop *Exhibit B1: State Highway Administration Technical Guidance Document for Mitigation Banks*. This document establishes a consistent framework for how Mitigation banks will be identified, planted, credited, monitored, and ultimately debited for use on SHA projects.

In general, Mitigation banks will be prioritized for establishment within the Critical Area, or at alternative locations approved by CAC staff. Each site will function as an individual MB and may be created on SHA-owned property or through agreements with other public entities or private partners, subject to Commission approval.

Exhibit B1 establishes standardized procedures and expectations for the creation, management, and tracking of Critical Area mitigation banks. The Technical Document defines requirements for site selection, site analysis review, crediting methodology, planting, and invasive species control, monitoring and maintenance, and recordkeeping. Credits established through approved mitigation banks may be used to meet SHA's mitigation obligations for:

1. Forest and tree clearing in the Critical Area;
2. Clearing and ground disturbance within the Critical Area Buffer;
3. Clearing of Forest Interior Dwelling Bird Species (FIDS) habitat; and
4. Critical Area 10% pollutant reduction requirements.

Exhibit B1 includes six attachments outlining the detailed steps and forms for mitigation bank implementation as further detailed below. Each of these is also attached to this staff report.

Attachment 1: Site Analysis *(Attachment B to this staff report):*
This Attachment outlines the criteria for selecting mitigation bank sites:

- Banks may be located within or outside the Critical Area, preferably within the same HUC-8 watershed[1] as the impact site.
- Sites may occur on SHA-owned, public, or private lands through agreements approved by CAC staff.
- Priority is given to locations within the Critical Area Buffer, overburdened or underserved communities, areas supporting rare species, and lands with limited forest cover or potential for restoration.

Attachment 2: Credits Approval Process *(Attachment C to this staff report)*:
This Attachment provides details on how mitigation credits are calculated, reviewed, and approved. Credits will be calculated based on the mitigation bank's site acreage, planting density, the type of mitigation (i.e., Buffer, non-Buffer, forest, or forest interior dwelling species (FIDS) habitat). Credits are approved and released by CAC staff and tracked using a standardized ledger.

Attachment 3: Planting Agreement *(Attachment D to this staff report)*:

[1] Mitigation Banks (MBs) will generally be established within the Critical Area boundary and corresponding Federal HUC-8 watershed, consistent with the approach used for wetland mitigation under State and Federal regulatory programs administered by the Maryland Department of the Environment (MDE) and the U.S. Army Corps of Engineers (USACE). The service area for each bank may employ a regional strategy that combines both county-based and watershed-based considerations, ensuring that mitigation benefits remain proximate and ecologically relevant to the impacted area.

This Attachment establishes documentation requirements for mitigation bank establishment, including site details, plant quantities, responsible parties, and signatures to ensure compliance. Additionally, the planting agreement provides a mechanism to document site conditions and management actions before and after planting, including measures to control for invasive species and address pest impacts such as deer browsing as well as documenting the species and number of plants installed.

Attachment 4: Annual Monitoring and Maintenance *(Attachment E to this staff report)*:
This Attachment provides reporting requirements for survival rates, invasive species management, and site condition assessments. The form captures key data inputs, including year of monitoring, plant survival rates, invasive species presence and management actions, and overall site condition assessments.

The maintenance section of the form requires SHA to document any observed site issues such as pest or wildlife damage, invasive species infestations, or other factors affecting site success, along with the corrective measures implemented. These monitoring and maintenance records enable both SHA and CAC staff to track the long-term performance of mitigation banks, identify recurring challenges, and apply lessons learned to future site selection, planting design, and maintenance practices.

Attachment 5: Critical Area Mitigation Bank Ledger *(Attachment F to this staff report)*:
This Attachment serves as the official record for tracking each bank's credits and debits. The ledger includes site location, approval and planting dates, jurisdiction, watershed, credit type, and release schedule. Every SHA project that debits from a mitigation bank will specify the project location, the credits to be debited, and the debit type (i.e., Buffer, forest/developed woodland, FIDS, 10% Pollutant Reduction, preservation, or other). Each mitigation bank will have an individualized credit release schedule to ensure maintenance and monitoring is complete prior to the release of any credits.

Attachment 6: Credit Release Form *(Attachment G to this staff report)*:
The Credit Release Form documents credit transactions once CAC staff approves their deduction for a specific SHA project. The form outlines the MB from which the credits will be deducted, the type of mitigation credited (Buffer, forest/developed woodland, FIDS, 10% pollutant reduction, or other), the quantity of credits deducted, and the remaining balance in the bank. This form will be used until all credits within the MB have been exhausted.

RECOMMENDATION
Commission staff recommend approval of the Exhibit B1: State Highway Administration Technical Guidance Document for Mitigation Banks.

Attachments
A. Exhibit B1: SHA Technical Guidance Document for Mitigation Banks
B. Attachment 1 - Site Analysis
C. Attachment 2 - Credit Approval Process
D. Attachment 3 - Planting Agreement

E. Attachment 4 - Annual Monitoring and Maintenance
F. Attachment 5 - Critical Area Mitigation Bank Ledger
G. Attachment 6 - Credit Release Form

ATTACHMENT A

EXHIBIT B1: STATE HIGHWAY ADMINISTRATION
TECHNICAL GUIDANCE DOCUMENT FOR MITIGATION BANKS

I. Introduction

This Technical Guidance Document is an exhibit to the Memorandum of Understanding (MOU), executed in March 2019, between the Critical Area Commission (the Commission) and the Maryland Department of Transportation (MDOT). The MOU clarifies the terms and procedures by which the Modal Administrations under MDOT conduct development activities within the Critical Area, including those that qualify for General Approval. The MOU also serves to improve the predictability of project mitigation needs and the expected results for mitigation as well as the process for establishing Mitigation Banks (MBs). The purpose of this Technical Guidance Document is to provide specific requirements for MBs that will be used by the State Highway Administration (SHA) to meet Critical Area mitigation requirements (Mitigation).

Technical requirements and data/tools used for analysis may change with the best available science. As it is the goal of the Commission and SHA to create a working document that adheres to the Critical Area law while providing flexibility in meeting mitigation requirements, this document is designed to change over time as experience is gained and data/tools are updated. Any changes to this document will require approval from both the SHA Administrator and the Executive Director of the Commission. Changes will be reported at the next scheduled Critical Area Commission meeting.

II. Mitigation Selection

SHA seeks to avoid and minimize Critical Area impacts to the extent feasible during the project development process. Onsite mitigation shall be prioritized where practicable to ensure no net loss of forest coverage within the Critical Area of the jurisdiction where the project is located. However, site constraints such as existing utilities, planned infrastructure improvements, limited SHA right-of-way, safety and maintenance setbacks, etc., may preclude the ability to fully or partially accomplish mitigation onsite. For SHA projects with site constraints, offsite mitigation selection for project impacts will be prioritized as follows:

1. Mitigate within the Critical Area in the same jurisdiction and Maryland 8-Digit Watershed as impacts.
2. Mitigate within the Critical Area on land owned by the respective jurisdiction via executed agreement.
3. Mitigate within the Critical Area and same County as impacts.
4. Mitigate via fee-in-lieu payment to the respective jurisdiction (with assistance in site selection and planting plan development, if necessary).
5. Mitigate via use of established and approved banks.

III. Mitigation Banks

Mitigation banking is a favorable solution for achieving timely and successful mitigation. The establishment of MBs provides an opportunity to: (1) consolidate fragmented mitigation from minor impacts to allow for larger mitigation sites with greater water quality and wildlife habitat benefits, (2) reduce lag-time between impacts and mitigation completion, (3) increase establishment success, and (4) provide cost-effective mitigation for the public.

SHA may propose to create a MB on land that offers targeted restoration opportunities which have been identified by SHA or a public or private partnership through a site analysis process. All MBs will be located either on land owned by SHA, or on land under a permanent conservation easement held by SHA or an approved third party. MBs should be established to create mitigation credits that are based on areal extent, instead of tree-for-tree credits.

When SHA submits a project for review and concurrence by Commission staff under the MOU for General Approval or submits a project for review and approval by the full Commission, the report/project submittal should note how SHA will address mitigation (i.e. plant onsite, offsite, debit from a MB, etc.).

MBs may be created to address the following mitigation needs:

1. Forest/tree clearing in the Critical Area.
2. Forest/tree clearing and ground disturbance within the Critical Area Buffer.
3. Forest/tree clearing of Forest Interior Dwelling Bird Species (FIDS) habitat, as defined in "A Guide to the Conservation of Forest Interior Dwelling Birds in the Chesapeake Bay Critical Area (June 2000)." To be considered FIDS habitat the following minimum sizes and configurations must be met: (a) forests of at least 50 acres in size with more than 10 acres or more of "Forest Interior" (i.e. forest greater than 300 feet from the nearest forest edge) or (b) riparian forests at least 50 acres in size with an average total width of 300 feet.
4. Critical Area 10% phosphorus removal requirement for projects with disturbance between 250 and 5,000 square feet, or for projects with disturbance greater than 5,000 square feet when requirements:
    - cannot be fully met onsite by proposed stormwater management treatment or a planting offset;
    - cannot be fully met offsite by proposed stormwater management treatment within the respective jurisdiction; or
    - cannot be met offsite by stormwater management treatment within the corresponding Maryland 8-Digit Watershed.

Establishment of Mitigation Banks

The establishment of a MB includes: (1) finding an acceptable location supported by ecological and opportunity evaluation tools, (2) establishing a credit and debit system (Critical Area MB Ledger), (3) planting, maintenance, and monitoring requirements, (4) protection in perpetuity, and (5) completing all steps and providing all documents required in the approval process.

In general, MBs will be prioritized for establishment within the Critical Area, or at alternative locations approved by Commission staff. Each site will be an individual MB. MBs can also be established through agreements with cooperating public and/or private entities as approved by Commission staff. A MB can be established to address Critical Area mitigation and 10% phosphorus removal requirements for projects: (1) when mitigation is either not feasible or cannot be fully accomplished onsite, (2) with anticipated future mitigation requirements, or (3) with outstanding mitigation requirements.

Location Criteria

1. Generally, MBs should be located within the Critical Area to ensure that "no net loss" of forest coverage is achieved. A minimum of 1:1 replacement of forest in the Critical Area is required. For 5 or less individual tree removals, trees must be replaced at a 1:1 ratio.
2. Areas outside of the Critical Area may be considered for a MB if they have an ecological connection to the Critical Area through stream channels, upland and wetland riparian corridors, contiguous forests, and areas adjacent to Critical Area headwaters. Planting/preservation in these areas may offer exceptional opportunities for mitigation, especially if riparian corridors and other ecological resources do not have the same protection standards outside the Critical Area boundary.
3. MBs should aim for a minimum of 5 acres available for forest restoration including natural regeneration, but smaller areas will be considered if they provide riparian habitat for Buffer mitigation, and/or fill in forest gaps, especially in FIDS habitat, or provide other exceptional ecological opportunities. Smaller areas may also be considered if they provide exceptional opportunities in support of equity.
4. Other banking options, including preservation of existing forest habitat, may be considered provided that 1:1 replacement of forest in the Critical Area can be documented.
5. MBs may be located on SHA or State-owned land as well as County-owned or private lands.
6. MBs can be established in cooperation with any public or private entity that is willing to enter into a legal agreement with SHA regarding any or all components of design, construction, maintenance, and monitoring. All terms of public-public or public-private partnership MBs, including sharing of credits, must be defined in a separate MOU between the public or private entity, SHA, and the Commission.

Additional factors should be considered when selecting a MB. Consideration should be given to the following:

- Overburdened and underserved communities;
- Potential impacts related to climate change;
- Potential impacts related to nuisance flooding;
- Planting in the Critical Area Buffer;
- Location of State and/or Federally listed rare, threatened and endangered species;
- Location of existing permanently protected land such as publicly owned parkland, preservation land, and land protected by easements;
- Location of areas with limited forest cover in the Critical Area;
- Location of other tree banks;
- Closing gaps in canopy cover and wildlife corridors; and
- Location of areas that will assist in wetland and/or stream mitigation.

Service Areas

SHA may use a regional strategy combining both a County-based approach and watershed-based approach to define the geographical service area of a MB. The service area of a MB will include the Critical Area of the County where the MB is established and extend within the Critical Area to the limits of the Federal HUC-8 Watershed. SHA and Commission staff will work together to finalize the service area for each MB.

Credits

MB credits will be established as follows:

1. Potential credits and debits on a 1:1 ratio will be determined using areal extent, instead of tree-for-tree credits.
2. Potential credits will be assessed in accordance with Attachment 2: Credit Approval Process for Mitigation Banks.
3. Forest credits established outside the Critical Area Buffer will be used as non-Buffer forest mitigation credits and FIDS habitat mitigation credits as long as the minimum habitat defining criteria are met.
4. Forest credits established inside the Critical Area Buffer may be used as Buffer mitigation credits.
5. Credits on properties with multiple ecological features (for example, non-Buffer forest and Buffer) would be tracked separately according to parameters 1 through 3 above.
6. Creation of other types of ecosystem habitat (wetland adaptation/migration corridors, pollinator habitat, etc.) will be considered for credits on a case-by-case basis.
7. Preservation credits may potentially be permitted at a ratio to be determined by Commission staff; however, no more than 1:2 impact to credit ratio will be allowed for preservation. SHA must provide justification for the consideration of preservation credits and preservation

credits will only be considered for forest not already permanently protected. Debiting preservation credits may be considered only after 1:1 forest replacement has been met for each project.

8. Credits will be released in accordance with review and approval of Attachment 6: Credit Release Form, which must be signed by Commission staff.
9. Commission staff will issue notice of a credit release as credits become available from approved MBs. Credits may not be debited until the credits have been released.
10. Debiting of released credits will be considered only upon assurance of no net loss of forest coverage within the Critical Area of the County where the project impacts occur.

Planting Types and Specifications

Plantings and/or natural regeneration species will be native to the Coastal Plain of Maryland, in accordance with the U.S. Fish and Wildlife Service's *Native Plants for Wildlife Habitat and Conservation Landscaping - Chesapeake Bay Watershed* handbook or the Natural Resources Conservation Service Plants Database: https://plants.sc.egov.usda.gov/home.

Site Preparation

1. Once the Commission staff and SHA agree on a site, SHA will begin preparation of the site to manage existing native vegetation and remove existing non-native invasive species.
2. The site can be selectively mowed/cleared to prepare the site for planting. Existing, native vegetation should be retained to the extent feasible.
3. To prepare the site for planting, a combination of mowing and/or herbicides can be used to remove invasive/competing species where the plantings are to occur.
4. When removing invasive trees and other nonnative vegetation, consider mulching in place and spreading around newly planted vegetation to help control invasive vegetation and encourage natural regeneration of hardwood species.

Planting Plan

1. The planting plan should include a variety of native coastal plain species and a maintenance and monitoring plan. The plantings should ensure the replacement or establishment of a forest to ensure biodiversity and structure by including a canopy layer, understory layer, and shrub layer.
2. Remove invasive/competing species in the area where plantings are to occur.
3. Planting may include soil amendments such as compost to help with plant survival.
4. Planting stock size can be variable depending on site-specific parameters provided that the end result is approximately 400 woody stems per acre.
5. A watering schedule should also be included in the planting plan.
6. Mowing around trees should be included as necessary during the first two years.
7. If appropriate, the landscaper should stake planted seedlings and install tree tubes/bird netting.

8. Remove tree tubes at an appropriate time to limit damage to trees, but no later than 5 years after planting.
9. Replace dead trees, as necessary, to maintain 400 woody stems per acre.
10. Generally, 400 woody stems per acre is the goal. This includes canopy trees, understory trees, and shrubs. No more than 10% of any individual woody layer (i.e., canopy trees, understory trees, shrubs) should consist of invasive species. The maximum threshold for invasive vines and invasive species in the herbaceous layer will be determined on a case by case basis.
11. If natural regeneration will be used to meet the 400 woody stems per acre goal, this should be based on adjacent forest that would provide recruitment (as defined in COMAR 27.01.09.01-4) and detailed in the planting plan. If recruitment does not occur as anticipated, then planting to meet the 400 woody stems per acre threshold will be necessary. Newly planted areas will be subject to the 5-year required monitoring period as specified in the Monitoring, Maintenance, Inspections, and Survivability section below.

Invasive Species

Invasive species are identified in the 2010 National Park Service/U.S. Fish and Wildlife Service document Plant Invaders of Mid Atlantic Natural Areas: Plant Invaders of Mid-Atlantic Natural Areas - Invasive.Org and Maryland Invasive Species Council Invasive Species of Concern in Maryland: https://mdinvasives.org/.

In general, the species listed below are considered priority species to control. These are the species that should be controlled most aggressively. These species are considered to be more of a threat to the long-term success of forest creation. They may be more persistent, highly prolific, likely to form monocultures, more easily managed, shade tolerant, or likely to inhibit development of a forested community.

Trees and shrubs

- Tree-of-heaven (*Ailanthus altissima*)
- Japanese barberry (*Berberis thunbergii*)
- Autumn or Russian Olive (*Elaeagnus spp*.)
- Privet (*Ligustrum spp*.)
- Bush honeysuckle species (*Lonicera spp*.)
- Callery (Bradford') pear (*Pyrus calleryana*)
- Multiflora rose (*Rosa multiflora*)

Vines

- Porcelainberry (*Ampelopsis brevipedunculata*)
- Oriental bittersweet (*Celastrus orbiculatus*)
- Winter creeper (*Euonymus fortunei*)
- English ivy (*Hedera helix*)
- Japanese hops (*Humulus japonicus*)
- Japanese honeysuckle (*Lonicera japonica*)
- Mile-a-minute (*Persicaria perfoliata*)
- Kudzu (*Pueraria spp*.)
- Chinese or Japanese Wisteria (*Wisteria spp*.)

Herbaceous

- Bamboo (*Bambusa spp*. and *Phyllostachys spp*.)
- Canada thistle (*Cirsium arvense*)
- Giant hogweed (*Heracleum mantegazzianum*)
- Purple loosestrife (*Lythrum salicaria*)
- Reed canarygrass (*Phalaris arundinacea*)
- Common reed (*Phragmites australis*)
- Japanese knotweed (*Reynoutria japonica*)
- Japanese stiltgrass (*Microstegium vimineum*)
- Chinese silvergrass (*Miscanthus sinensis*)
- Small carpetgrass (*Arthraxon hispidus*)

Monitoring, Maintenance, Inspections, and Survivability

MB plantings will be monitored by SHA for survival success for 5 years following planting. In addition, Commission staff may also inspect the plantings. SHA will submit a monitoring report (Attachment 4: Annual Monitoring and Maintenance Report Template) to the Commission for each year of the 5-year monitoring period, due on March 1, for the previous calendar year. A final inspection will be completed by SHA and Commission staff at the end of the 5th year to ensure the site meets all requirements. The final inspection should occur during the late growing season. SHA will document final inspection approval via a concurrence letter, signed by Commission staff. Commission staff reserves the right to adjust credits at any time if planting standards/requirements are not met. If native plant establishment occurs through natural regeneration of acceptable native species, this can be counted towards the required planting density.

Tracking

Credits and debits will be tracked using Attachment 5: Mitigation Credit Tracking Spreadsheet (Critical Area MB Ledger Template).

Impacts to Mitigation Banks

In the event that trees/vegetation are removed in an area planted for mitigation banking credit, SHA will be required to reestablish the trees/vegetation removed. The credits associated with the removed vegetation must be deleted from the tracking spreadsheet and the newly planted vegetation will be added to the tracking spreadsheet and monitoring will start again at year one for the newly planted and/or naturally regenerated vegetation. In the event that the credits have not been utilized/released, SHA is not required to reestablish the removed vegetation.

Natural Events/Emergencies

Emergencies, including natural events, may impact MBs. SHA may take immediate action when situations and conditions jeopardize public safety and welfare. SHA shall notify Commission staff as soon as possible of any activities/events that impact MBs and the extent of the impacts. SHA will work together with Commission staff to determine the best course of action for addressing the impacts.

Permanent Protection

SHA must provide a mechanism for permanently protecting the MBs. For MBs on SHA-owned land, SHA will adhere to the limitations/guidance in this section. For MBs on land not owned by SHA, the MB must be under a permanent conservation easement held by SHA or an approved third party that has been reviewed and approved by Commission staff and the Assistant Attorney General for SHA. SHA will continue to inspect the MBs after receiving the final inspection approval of the initial 5-year monitoring period to ensure that forested conditions (including canopy, understory, and shrub layers) are maintained, and invasive species do not overtake the site. This will be accomplished using a tiered approach as follows:

1. Inspect the MBs annually from year 5 to year 10;
2. Inspect the MBs tri-annually from year 10 to year 25; and
3. Inspect the MBs once every 5 years for year 25 and after.

For each MB inspection, SHA will submit a brief summary to Commission staff. If any issues (including invasive species, deer damage, dead trees, etc.) are identified, SHA will document the issues in the summary and implement corrective actions as needed.

MBs must be maintained in a forested state upon completion of plantings and/or natural regeneration. If SHA proposes development in the future, SHA shall seek approval from the Commission to determine how impacts to the MB will be addressed. If SHA proposes to dispose of the land, restrictive covenants, approved by SHA and Commission staff, must be placed on the property prior to disposal. Permitted uses shall be consistent with forest conservation and management and be limited to passive recreation. Passive recreation includes low-impact activities conducted outdoors such as hiking, nature study, fishing, etc. Passive recreation does

not include trails for the use of ATVs or other motorized vehicles. Any trails that are allowed should be public and consistent with the Commission's Public Pathways Guidance document. Structures are prohibited except for educational signage or fencing which may be used to mark boundaries. Any parking areas must be located outside the areas established for mitigation credit. Per COMAR 27.02.02, any proposed grading, construction, lot coverage, tree clearing, etc., on a MB shall be submitted for review and concurrence by Commission staff under the MOU for General Approval or, alternatively, for review and approval by the full Commission. Activities included in a specific Forest Stewardship Plan or Forest Management Plan are allowed.

IV. Submission Requirements

SHA will submit to Commission staff information on potential MB sites. The following information will be required as part of a complete submittal:

- Cover letter signed by SHA;
- Address of MB;
- Tax map, parcel, lot number;
- Latitude/Longitude;
- GIS data (e.g., shapefile, feature class), if available;
- Mitigation Bank Submittal Report as described in Attachment 1: Site Analysis for Mitigation Banks;
- Site preparation plan as described in Section III. Mitigation Banks: Site Preparation;
- A master planting plan/schedule as described in Section III. Mitigation Banks: Planting Plan that also includes the following:
    - Key
    - Botanical name
    - Common name
    - Size and spacing
    - Quantity of species
- Signed Critical Area Commission Planting Agreement (see Attachment 3: Planting Agreement Template) including a maintenance and monitoring plan as described in Section III. Mitigation Banks: Monitoring, Maintenance, Inspections, and Survivability;
- Forest Stewardship Plan, if applicable;
- Method of permanent protection, and applicable conservation easement or restrictive covenants; and
- MOU between the public or private entity, SHA, and the Commission, if applicable.

Upon Commission staff's review and approval of a complete MB submittal, SHA will document site acceptance via a concurrence letter, signed by Commission staff. SHA and Commission staff will then proceed with assessing potential mitigation credits in accordance with Attachment 2: Credit Approval Process for Mitigation Banks.

EXHIBIT B1: ATTACHMENTS

Attachment 1: Site Analysis Process for Mitigation Banks

Attachment 2: Credit Approval Process for Mitigation Banks

Attachment 3: Planting Agreement Template

Attachment 4: Annual Monitoring and Maintenance Report Template

Attachment 5: Mitigation Credit Tracking Spreadsheet

Attachment 6: Credit Release Form

ATTACHMENT B

EXHIBIT B1: ATTACHMENT 1
SITE ANALYSIS FOR MITIGATION BANKS

Generally, MBs should be located within the Critical Area to ensure "no net loss" of forest coverage. The overall goal when establishing MBs should be to replace the habitat and water quality benefits that have been lost due to SHA project impacts, coupled with considerations for climate resiliency and environmental justice (EJ).

The evaluation of a proposed MB will require documentation of credits that could potentially be generated, and documentation of ecological values associated with those credits. The documentation needed will include general information about the site, field assessments, and the use of online landscape and ecological mapping tools. Two tools that are particularly helpful include the Watershed Resources Registry (WRR) and MD DNR's GreenPrint.

In addition, information needs to be provided related to climate resiliency and EJ. Tools that can be used to generate scores and/or generate maps are provided below and include Sea Level Rise Projections for MD 2023, MD Flood Maps, MD DNR's Restoration and Resilience Mapper, MDE's EJ Screening Tool, and the MD Climate and Health Equity Mapper.

Score weights could vary based on proximity to impacts, environmental benefits provided, and climate resiliency and equity considerations. For example, a site with a low score for environmental benefits may still be acceptable based on proximity to underserved and overburdened communities with high scores on equity and EJ.

Watershed Resources Registry (WRR)

The WRR website helps locate properties with opportunities for restoration or preservation of four main ecosystem types: 1) uplands, 2) wetlands, 3) riparian areas, and 4) stormwater infrastructure-areas where existing resources should be protected for the stormwater benefits they provide. The WRR can be used to identify and evaluate potential MB sites and determine the number of credits broken out by riparian, upland restoration, etc.

When a site is selected, WRR provides location details that include the reasons a parcel is suitable for a specific mitigation or restoration opportunity and its ranking (1-5). Generally, anything scoring a 1 is ecologically/geomorphologically suited for that type of restoration. The scores then increase based on additional factors of priority across the State agencies (i.e., the area scores higher if it also falls within a green infrastructure area or is within a Tier II watershed). Essentially anything with a 1 is considered a candidate for restoration, with more weight added to its score for a higher number of acres available, and/or higher State priority for restoration.

GreenPrint

GreenPrint can help determine if a site is acceptable from an ecological perspective. The GreenPrint mapping tool has divided Maryland's natural resources into five main categories:

- Green infrastructure and important forests;
- Wildlife and rare species habitat;
- Nontidal streams and fisheries;
- Tidal fisheries and bay and coastal ecosystems; and
- Areas important for climate resiliency such as wetland migration areas.

Targeted Ecological Areas (TEAs) combine all the above categories to identify the most ecologically important areas in the state.

GreenPrint is a useful tool for desktop analysis of existing conditions. Site visits and/or field work may be necessary to verify GIS data provided in GreenPrint.

Climate Resiliency Information

- Vulnerability to sea level rise (SLR), storm surge, and other coastal hazards. Data source: Sea Level Rise Projections for MD 2023;
- Wetland adaptation/migration areas to assist in identifying appropriate plantings in these areas. Data source: MD DNR's MD Coastal Atlas (Sea Level Rise Vulnerable Wetlands and Sea Level Rise Wetland Adaptation Areas);
- FEMA Floodplains and Special Flood Hazard Areas. Data source: MD Flood Maps; and
- Ecosystem resiliency features of a site such as oyster beds, dunes, barrier islands, SAV, etc. as well as natural and/or restored areas of forest or marsh along the shoreline that have the potential to reduce the impacts of coastal hazards and SLR.

Equity and Environmental Justice Information

- Environmental Justice (EJ) score. Data source: MDE's EJ Screening Tool;
- Underserved areas for tree canopy. Data source: 5 Million Trees Initiative;
- Potential impacts and benefits to public amenities/access. Data source: MD Park Equity Tool; and
- Community resiliency and/or environmental health benefits. Data source: MD Climate and Health Equity Mapper.

Mitigation Bank Submittal Report

Based on the site analysis components described above, and using additional data and/or mapping tools as needed, SHA will prepare a Mitigation Bank Submittal Report that includes the following information:

- Name and location (Address, County and Town);
- Federal HUC 8 Watershed;
- Maryland HUC 8 Watershed(s);
- General description of the site including potential issues such as invasive species, flooding, and brief summary of information listed below;
- Aerial(s) of the site including parcel boundaries, scale, orientation, areas/acreages of proposed planting and/or natural regeneration;
- Aerial/table depicting potential mitigation credits for Buffer, non-Buffer forest, FIDS habitat, and 10% phosphorus removal);
- Site plan showing Habitat Protection Areas and other sensitive features on site:
    - Critical Area Buffer (including expanded Buffer if applicable)
    - Tidal wetlands and waters
    - Nontidal streams, wetlands and 25-foot nontidal wetland buffer
    - Threatened and endangered species and species in need of conservation
    - Sensitive Species Project Review Areas (SSPRAs)
    - Targeted Ecological Areas (TEAs)
    - Existing forest (including FIDS habitat)
    - Existing native vegetation
    - Soils (type, areas of hydric soils, areas of highly erodible soil)
    - Connection to other natural resources
- Total acreage in the Critical Area (broken down by IDA, LDA, RCA);
- Existing structures including, but not limited to, buildings, roads, SWM systems/facilities, culverts, utilities, etc.;
- Description of adjacent properties current use and/or proposed use, if known;
- Information on any protections that exist, such as easements either on the proposed MB site or adjacent properties;
- Scores from WRR, GreenPrint, MD Climate and Health Equity Mapper, 5 Million Trees Initiative (Underserved Areas Mapper), and MDE's EJ Screening Tool; and,
- Maps and description of climate resiliency analysis.

ATTACHMENT C

EXHIBIT B1: ATTACHMENT 2
CREDIT APPROVAL PROCESS FOR MITIGATION BANKS

SHA and Commission staff will work together to assess each proposed MB site for the type (Buffer, non-Buffer forest, FIDS habitat, 10% phosphorus removal) and amount of potential mitigation credits that may be feasible at each MB given the existing conditions, available budget, and any site constraints. The following process will be used to assess MBs for potential credits:

1. SHA will submit a proposal to establish a MB as outlined in Exhibit B1: State Highway Administration – Technical Guidance Document for Mitigation Banks. The proposal will include an estimate of the potential mitigation credits a site could provide to address Buffer disturbance, non-Buffer forest clearing, FIDS habitat loss, and the 10% phosphorus removal requirement.
2. Commission staff will review the proposal and determine the amount and type of potential mitigation credits the proposed MB could provide. Commission staff may request a site visit to verify the potential mitigation credits. Commission staff may reach out to the DNR Forester for additional guidance if necessary.
3. The potential credits for each approved MB will be tracked in Attachment 5: Mitigation Credit Tracking Spreadsheet (Critical Area MB Ledger Template).
4. As applicable, the potential mitigation credits may change due to monitoring of the MB as described in Section III. Mitigation Banks: Monitoring, Maintenance, Inspections, and Survivability.
5. SHA may propose a partial credit release schedule for each MB, subject to Commission staff review and approval. A partial credit release schedule may include the following:
    - 15% credit release upon Commission staff approval of a proposed MB;
    - 15% credit release upon installation of all plantings in accordance with the approved planting plan;
    - 20% credit release upon completion of year 2 monitoring;
    - 20% credit release upon completion of year 3 monitoring; and
    - 30% credit release upon completion of year 5 monitoring and the final inspection.
6. Credits will be released in accordance with review and approval of Attachment 6: Credit Release Form, which must be signed by Commission staff.
7. Commission staff will issue notice of a credit release as credits become available from approved MBs. Credits may not be used until the credits have been released.

ATTACHMENT D

EXHIBIT B1: ATTACHMENT 3
PLANTING AGREEMENT TEMPLATE

SHA Mitigation Bank Planting Agreement

Name of Bank:	
Location of Bank:	**Date of Planting:**
Name of Primary Contact:	
Phone #:	
Email:	
Number of Trees Planted:	**Acres Planted:**
Size of trees/shrubs planted and spacing density:	
Briefly describe any pre-planting site preparation (e.g., mowing, removal of invasive vegetation, etc.):	

Briefly describe any post-planting measures to control for deer, weeds, invasive species (e.g., mowing, mulch, weed control mats, deer tubes, etc.):

Other comments or concerns (e.g., very wet or dry soils, standing water, etc.):

Name of Responsible Party: **Date:**

Signature:

ATTACHMENT E

EXHIBIT B1: ATTACHMENT 4
ANNUAL MONITORING AND MAINTENANCE REPORT TEMPLATE

SHA Mitigation Bank

Monitoring and Maintenance Report

Name/Address of Bank: **Date of Inspection:**
Date of Initial Planting: **Required Monitoring Period: 5 Years** **Monitoring Year (e.g., 1st, 2nd, etc.):**
Name of Primary Contact(s):
Phone/Email:
Mitigation Type (Buffer, non-Buffer Forest, FIDS Habitat, 10% Phosphorus Removal) and Acreage:
Number of Trees/Shrubs Planted (Divide into sections if needed for areas that are to be established differently, such as planting/natural regeneration or combination): **Acres Planted:** **Target Density/acre:**
Describe any special measures to help ensure survival of target vegetation (e.g., use of tree tubes, initial and ongoing control of invasives, etc.):

Evidence of Flooding/Drought:
Number / Percentage of Living Trees:
Number / Percentage of Dead Trees:
Condition of Surviving Trees/Shrubs:
Required Replanting:
Evidence of Pest and/or Animal Damage (please list different types of damage and if associated with a particular species):
List of Invasive Species (list each identified species and place a check mark under the adjectives that best describe the species' frequency and extent):

Species: **Common** **Occasional**	**Localized** **Widespread**
Maintenance Measures Taken Since Previous Inspection (e.g., mowing, use of herbicides/pesticides, vegetation replacement, etc.): **Costs of maintenance/vegetation replacement:**	
Maintenance Measures Planned for Upcoming Year (e.g., mowing, use of herbicides/pesticides, vegetation replacement, etc.): **Estimated costs of maintenance/vegetation replacement for upcoming year:**	
Additional Comments and Concerns:	
Inspector Name(s): **Date:** **Signature(s):**	

ATTACHMENT F

EXHIBIT B1: ATTACHMENT 5
MITIGATION CREDIT TRACKING SPREADSHEET

Critical Area MB Ledger Template

CRITICAL AREA MITIGATION BANK (MB) NAME:	
MB APPROVAL DATE:	
MB FINAL PLANTING DATE:	
COUNTY:	
FED HUC-8 WATERSHED:	

PROJECTS WITH IMPACTS DEBITING FROM MB CREDITS				MB CREDITS		SQUARE FEET (ACRES) OF CREDIT						NOTES
						BUFFER	NON-BUFFER FOREST	FIDS HABITAT	10% PR	PRESERVATION	OTHER	
SHA CONTRACT NO. / PROJECT NAME	JURISDICTION	PROJECT TYPE (MOU OR FULL COMMISSION)	PROJECT APPROVAL DATE	**TOTAL SITE CREDITS**								Total Site Credits
				Initial Release (%):	15%							Approved MB Submittal
				Credits Debited								
				Credits Debited								
				BALANCE								
				Second Release (%)	15%							Plantings Installed
				Credits Debited								
				Credits Debited								
				BALANCE								
				Third Release (%)	20%							Year 2 Monitoring Completed
				Credits Debited								
				Credits Debited								
				BALANCE								
				Fourth Release (%)	20%							Year 3 Monitoring Completed
				Credits Debited								
				Credits Debited								
				BALANCE								
				Fifth Release (%)	30%							Year 5 Monitoring & Inspection Completed
				Credits Debited								
				Credits Debited								
				BALANCE								

ATTACHMENT G

EXHIBIT B1: ATTACHMENT 6
CREDIT RELEASE FORM

1. Mitigation Bank Name:

   _____

2. Mitigation Type (Buffer, non-Buffer Forest, FIDS Habitat, 10% Phosphorus Removal):

   _____

3. Mitigation Credits (SF):

   _____

4. Remaining Credits in Bank (SF):

   _____

5. Project(s) Credits Applied to (if credits will be used to satisfy outstanding mitigation requirements):

   _____

6. Banking Credits (if credits will be used to establish/add to a mitigation bank for future mitigation requirements):

   _____

7. Date: _____

The undersigned certifies that the mitigation credits, as described above, are available to be utilized as either mitigation credits to satisfy mitigation requirements for previously approved projects or as mitigation banking credits available for use to meet future mitigation requirements.

Signature: _____