HARFORD COUNTY BILL NO. 23-037

Brief Title (Habitat Protection Areas-Zoning Chapter 267-63.9)
is herewith submitted to the County Council of Harford County for enrollment as being the text as finally passed.

CERTIFIED TRUE AND CORRECT

Council Administrator

Date 2-6-24

ENROLLED

Council President

Date Feb 6 2024

BY THE COUNCIL

Read the third time.

Passed: LSD 24-005

Failed of Passage: _____

By Order

Council Administrator

Sealed with the County Seal and presented to the County Executive for approval this 7th Day of January 2024, at 3:00 p.m.

Council Administrator

BY THE EXECUTIVE

COUNTY EXECUTIVE

APPROVED: Date 2/9/24

BY THE COUNCIL

This Bill No. 23-037 having been approved by the Executive and returned to the Council, becomes law on February 9, 2024.

EFFECTIVE DATE: April 9, 2024

COUNTY COUNCIL

OF

HARFORD COUNTY, MARYLAND

BILL NO. 23-037

Introduced by Council President Vincenti at the request of the County Executive

Legislative Day No. 23-033 Date December 19, 2023

AN ACT to repeal and reenact, with amendments, Subsection A of Section 267-63.9, Habitat protection areas, of Part II: General Legislation, Chapter 267, Zoning, Article VII, District Regulations; to add species sites and species to be included in Subsection A(2) of Section 267-63.9 entitled, Habitats of state and federally designated and listed threatened or endangered species or species in need of conservation, natural heritage areas and habitats of local significance; and, to add to the end of Subsection A of Section 267-63.9 a new paragraph incorporating Department of Natural Resources Wildlife and Heritage Division maps showing the habitat protection areas; and, to renumber each subsequent Subsection to Section 267-63.9; and, to add to newly numbered Subsection F(1)(f) of Section 267-63.9, specified wildlife habitats determined to be of local significance; and, to add to Subsections F(2)(a), (b), (c) and (d) of Section 267-63.9, the terms "plant and" before the word "wildlife" in each of those paragraphs; and, to add a new paragraph (e) to Subsection F(2) of Section 267-69.3 to include protection of natural heritage areas; and generally relating to zoning; and to add a new Appendix H to the Harford County Chesapeake Bay Critical Area Management Program Manual, entitled "Notification and Review Procedures for Projects in Harford County Involving Nontidal Wetlands"; and to replace in its entirety Appendix I to the Harford County Chesapeake Bay Critical Area Management Program Manual, entitled "Habitat Protection Areas for the Harford County Critical Area"; and to replace all Chesapeake Bay Critical Area Program Maps and Program Manual Maps incorporated by reference into the Harford County Code under Section 169-1A(1) of the Code, which were revised (1) as a result of updated natural resource information from the Maryland Department of Natural Resources and other cartographic baselayer information, and (2) in order to be consistent with the State of Maryland.

By the Council, December 19, 2023

Introduced, read first time, ordered posted and public hearing scheduled:

on: January 16, 2023

at: 6:45 PM

By Order: Mylia A. Dixon, Council Administrator

PUBLIC HEARING

Having been posted and notice of time and place of hearing and title of Bill having been published according to the Charter, a public hearing was held on January 16, 2024, and concluded on January 16, 2024.

Mylia A. Dixon, Council Administrator

EXPLANATION: CAPITALS INDICATE MATTER ADDED TO EXISTING LAW. [Brackets] indicate matter deleted from existing law. Underlining indicates language added to Bill by amendment. Language lined through indicates matter stricken out of Bill by amendment.

Section 1. Be It Enacted By The County Council of Harford County, Maryland that Subsection A of Section 267-69.3, Habitat protection areas, of Part II: General Legislation, Chapter 267, Zoning, Article VII, District Regulations; to add species sites and species to be included in Subsection A(2) of Section 267-63.9 entitled, Habitats of state and federally designated and listed threatened or endangered species or species in need of conservation, natural heritage areas and habitats of local significance; and, to add to the end of Subsection A of Section 267-63.9 a new paragraph incorporating Department of Natural Resources Wildlife and Heritage Division maps showing the habitat protection areas; and, to renumber each subsequent Subsection to Section 267-69.3; and, to add to newly numbered Subsection F(1)(f) of Section 267-69.3, specified wildlife habitats determined to be of local significance; and, to add to Subsections F(2)(a), (b), (c) and (d) of Section 267-69.3, the terms "plant and" before the word "wildlife" in each of those paragraphs; and, to add a new paragraph (e) to Subsection F(2) of Section 267-69.3 to include protection of natural heritage areas; all of the Harford County Code, as amended, be, and are hereby, repealed and reenacted, with amendments, all to read as follows:

Chapter 267. Zoning

Article VII. District Regulations

§ 267-63.9. Habitat protection areas.

A. Description. Areas with significant natural resource value are called habitat protection areas no matter where they are located within the Critical Area. To ensure protection of these areas, an applicant for a development activity, redevelopment activity or change in land use shall identify all applicable habitat protection areas and follow the standards set forth in COMAR 27.01.09, as amended, included in Appendix K of the Harford County Chesapeake Bay Critical Area Program Manual. In addition to the Critical Area buffer described in § 267-63.7 (The Critical Area buffer) and § 267-63.8 (Modified buffer areas), other habitat protection areas include:

(1) Wetlands or other identified aquatic habitats.

(2) Habitats of state and federally designated and listed threatened or endangered species or species in need of conservation, natural heritage areas and habitats of local significance.

SPECIES SITES INCLUDE:

(A) BOYER ROAD SHORELINE

(B) GUNPOWDER SHORE

(C) I-95 CROSSING

(D) LOWER DEER CREEK

(E) LOWER SUSQUEHANNA

(F) NORTHERN SUSQUEHANNA CANAL

(G) OAKINGTON SHORE

(H) OTTER POINT CREEK

(I) SOUTH LAPIDUM

(J) STAFFORD ROAD SLOPES

~~(K) SWAN CREEK~~

SPECIES INCLUDE:

(A) SMALL WATERWORT (RARE)

(B) MUDWORT (ENDANGERED)

(C) PARKER'S PIPEWORT (THREATENED)

(D) MARYLAND BUR-MARIGOLD (WATCHLIST)

(E) SPONGY LOPHOTOCARPUS (RARE)

(F) NORTHERN MAP TURTLE (ENDANGERED)

(G) CHESAPEAKE LOGPERCH (THREATENED)

(H) MARYLAND DARTER (ENDANGERED)

(I) SINGLE-HEADED PUSSYTOES (THREATENED)

(J) RAPIDS CLUBTAIL (IN NEED OF CONSERVATION)

(K) SHORTNOSE STURGEON (ENDANGERED)

(L) ATLANTIC STURGEON (THREATENED)

(M) SHORT'S ROCKCRESS (WATCHLIST)

(N) STARFLOWER SOLOMON'S-PLUME (ENDANGERED)

(O) SWEET-SCENTED INDIAN-PLANTAIN (ENDANGERED)

(P) VALERIAN (ENDANGERED)

(Q) CREEPER (IN NEED OF CONSERVATION)

(R) ALEWIFE FLOATER (WATCHLIST)

(S) COMELY SHINER (WATCHLIST)

(T) PRIMROSE-WILLOW (STATE RARE)

(U) POTOMAC AMPHIPOD (WATCHLIST)

~~(V) SALT-MARSH-BULRUSH (RARE)~~

(W) TICKSEED SUNFLOWER (WATCHLIST)

(3) Colonial water bird nesting sites.

(4) Riparian forests and other forested areas utilized as breeding habitat by forest interior dwelling species.

(5) Anadromous fish propagation waters.

(6) Waterfowl staging and concentration areas in tidal waters, tributary streams or tidal and nontidal wetlands.

(7) Other areas that may, in the future, be identified by state and federal agencies as important plant and wildlife habitat areas. The process for designation of new habitats shall be in accordance with COMAR 27.01.09.04C(2)(c).

B. MAPS IDENTIFYING THESE SPECIFIC HABITAT PROTECTION AREAS ARE MAINTAINED BY THE DEPARTMENT OF NATURAL RESOURCES WILDLIFE AND HERITAGE DIVISION. THE MOST RECENT UPDATED INVENTORY WAS COMPLETED IN AUGUST, 2022, AND RECOMMENDATIONS CONTAINED IN APPENDIX I OF THE HARFORD COUNTY CRITICAL AREA PROGRAM, ENTITLED "HABITAT PROTECTION AREAS FOR THE HARFORD COUNTY CRITICAL AREA" AND ARE HEREBY INCORPORATED INTO THIS CODE.

~~B.~~C. Process.

(1) The disturbance of a habitat protection area shall be prohibited unless permitted as set forth in Subsection ~~C~~ D below.

(2) An applicant for a proposed activity within a habitat protection area shall request review by the Department of Natural Resources Wildlife and Heritage Service, and, as necessary, the United States Fish and Wildlife Service, for comment and technical advice.

(3) An applicant shall coordinate with the Department of Natural Resources to develop a habitat protection plan that provides for the protection and conservation of the species and habitats identified.

~~C.~~D. Special conditions.

(1) The location of roads, bridges or utilities shall be prohibited within the boundaries of a habitat protection area unless there is no feasible alternative, as determined by

the Director of Planning and Zoning in consultation with the Director of the Department of Public Works, in which case they shall be located, designed, constructed and maintained to provide maximum erosion protection, minimize adverse effects on wildlife and aquatic life and their habitats and maintain hydrologic processes and water quality.

(2) Existing farm ponds and other existing man-made bodies of water for the purpose of impounding water for agriculture, water supply, recreation or waterfowl habitat are specifically excluded from coverage by the provisions of this section.

(3) Any activity that occurs in a free-flowing stream with a watershed of 400 acres or more (or 100 acres or more in the case of trout streams) requires a waterways construction/obstruction permit from the Maryland Department of the Environment.

(4) An applicant shall demonstrate how development activities that must cross or otherwise affect streams will be designed to:

(a) Reduce increases in flood frequency and severity that are attributable to development;

(b) Retain tree canopy so as to maintain stream water temperatures within normal variation;

(c) Provide a natural substrate for streambeds; and

(d) Minimize adverse water quality and quantity impacts of stormwater.

~~D.~~E. Threatened and endangered species and species in need of conservation. If a threatened or endangered species, or species in need of conservation, is identified on a development site, the habitat protection plan shall include a designated protection area around the habitat

occurring on site, unless the applicant can demonstrate development impacts have been minimized, as determined by the Department of Natural Resources.

~~E.~~F. Plant and wildlife habitat protection areas.

(1) Plant and wildlife habitats in the Critical Area include:

(a) Colonial water bird nesting sites;

(b) Waterfowl staging and concentration areas in tidal waters, tributary streams or tidal and nontidal wetlands;

(c) Existing riparian forests (e.g., relatively mature forests of at least 300 feet in width which occur adjacent to streams, wetlands or the Bay shoreline and which are documented breeding areas);

(d) Forest areas utilized as breeding areas by forest interior dwelling birds and other wildlife species (e.g., relatively mature forested areas within the Critical Area of 100 acres or more, or forest connected with such areas);

(e) Other areas which may, in the future, be identified by the state and federal agencies as important plant and wildlife habitat areas;

~~(f)~~ Other plant and wildlife habitats determined to be of local significance,~~; and~~ WHICH INCLUDE THE FOLLOWING:

(1) BELCAMP BEACH

(2) GRAYS RUN

(3) LEIGHT PARK SITE

(4) PERRYMAN WOODS

(5) SWAN CREEK POINT

(6) WILLOUGHBY WOODS; AND

(g) Natural heritage areas which have been designated.

(2) The policies of the County regarding plant and wildlife habitat in the Critical Area shall be to:

(a) Conserve PLANT AND wildlife habitat in the Critical Area;

(b) Protect those PLANT AND wildlife habitats that tend to be least abundant or which may become so in the future if current land-use trends continue;

(c) Protect those PLANT AND wildlife habitat types which are required to support the continued presence of various species; and

(d) Protect those PLANT AND wildlife habitat types and plant communities which are determined by the County to be of local significance; AND

(e) PROTECT NATURAL HERITAGE AREAS.

(3) If a plant or wildlife habitat is identified on a development site, the habitat protection plan shall include a designated protection area around the habitat occurring on site, unless the applicant can demonstrate development impacts have been minimized, as determined by the Department of Natural Resources.

(4) When proposing development activities within riparian forests or forest areas utilized as breeding areas by forest interior dwelling birds, applicants shall utilize the guidance found in the Critical Area Commission publication entitled "A Guide to the Conservation of Forest Interior Dwelling Birds in the Chesapeake Bay Critical Area" dated June 2000, and as may be subsequently amended. In addition, the Department of Natural Resources may make specific recommendations based on an evaluation of the site and the proposed development.

(5) For development activities in resource conservation areas and limited development

areas, wildlife corridors shall be established and used to connect areas left in forest cover with any large forest tracts which are located outside of the area of the property being developed or subdivided. The area left in forest cover (at least 70% of the tract in LDAs or RCAs as required by the County Chesapeake Bay Critical Area Program) shall be adjacent to larger forest, not left as an isolated island of trees. Planting required as a mitigation measure shall also be adjacent to other habitat.

(6) Buffer areas for nesting sites of colonial nesting water birds shall be established so that these sites are protected from the adverse impacts of development activities and from disturbance during the breeding season.

(7) New water-dependent facilities shall be located to prevent disturbance to sites of significance to wildlife such as historic, aquatic staging and concentration areas for waterfowl.

(8) Protection measures, including a buffer area, shall be established where appropriate for other plant and wildlife habitat sites identified in this ordinance.

(9) Forested areas required to support wildlife species identified as threatened and endangered, or in need of conservation, shall be protected and conserved by developing management programs which have as their objective conserving the wildlife that inhabit or use the areas. Development activities, or the clearing or cutting of trees which might occur in the areas, shall be conducted so as to conserve riparian habitat, forest interior wildlife species and their habitat. Management measures may include incorporating appropriate wildlife protection elements into timber harvest plans, forest management plans, cluster zoning or other site design

criteria which provide for the conservation of wildlife habitat. Measures may also include soil conservation plans which have wildlife habitat protection provisions appropriate to the areas defined above and incentive programs which use the acquisition of easements and other similar techniques.

(10) When development activities, or the cutting or clearing of trees, occur in forested areas, to the extent practical, corridors of existing forest or woodland vegetation shall be maintained to provide effective connections between wildlife habitat areas.

(11) Those plant and wildlife habitats considered to be of local significance by the County shall be protected. Examples of these are those whose habitat values may not be of statewide significance but are of importance locally or regionally because they contain species uncommon or of limited occurrence in the jurisdiction or because the species are found in unusually high concentrations.

(12) Natural heritage areas shall be protected from alterations due to development activities, or cutting or clearing, so that the structure and species composition of the areas are maintained.

~~F.~~G. Anadromous fish propagation waters.

(1) The Department of Natural Resources has identified and mapped anadromous fish propagation waters as defined in this Section 267-4 (Definitions) and these maps are available by contacting the Department.

(2) The policies of the County with regard to anadromous fish propagation waters shall be to:

(a) Protect the instream and streambank habitat of anadromous fish propagation waters;

(b) Promote land use policies and practices in the watershed of spawning streams within the Critical Area which will minimize the adverse impacts of development on the water quality of the streams; and

(c) Provide for the unobstructed movement of spawning and larval forms of anadromous fish in streams.

(3) Within anadromous fish propagation watersheds, the following measures are required:

(a) The installation or introduction of concrete riprap or other artificial surfaces onto the bottom of natural streams shall be prohibited unless it can be demonstrated that water quality and fisheries habitat can be improved.

(b) Channelization or other physical alterations which may change the course or circulation of a stream and thereby interfere with the movement of fish shall be prohibited.

(c) The County shall require each development activity that occurs within a watershed draining to anadromous fish propagation waters to fulfill the following objectives:

(1) Minimize development activities or land disturbances within the watershed;

(2) Maintain, or if practicable, improve water quality in affected streams or other water bodies;

(3) Mininize to the extent possible the discharge of sediments into affected streams or other water bodies; and

(4) Maintain, or if practicable, increase the natural or native vegetation

of the watershed and tree canopy over the streams.

(4) The County shall ensure coordination and compliance with complementary state laws and regulations and shall.

(a) Prohibit the construction or placement of dams or other structures that would interfere with or prevent the movement of spawning fish or larval forms in streams or other designated water bodies. If practical, existing structures shall be removed.

(b) Ensure that the construction, repair or maintenance activities associated with bridges, or other stream crossing or with utilities and roads, which involve disturbance within the buffer or which occur instream, as described in COMAR 08.05.03.11B(5), shall be prohibited between March 1 and June 15 of each year.

Section 2. And Be It Further Enacted that the revised maps incorporated by reference into the Harford County Code under newly added Section 267-63.9B are attached hereto under Appendix I.

Section 3. And Be It Further Enacted that Appendix H to the Harford County Chesapeake Bay Critical Area Management Program Manual, entitled "Notification and Review Procedures for Projects in Harford County Involving Nontidal Wetlands" is hereby added with the attached Appendix H, labeled **Attachment 1** for purposes of this legislation.

Section 4. And Be It Further Enacted that Appendix I to the Harford County Chesapeake Bay Critical Area Management Program Manual, entitled "Habitat Protection Areas for the Harford County Critical Area" is hereby replaced in its entirety with the attached revised Appendix I, labeled **Attachment 2** for purposes of this legislation.

Section 5. And Be It Further Enacted that all Chesapeake Bay Critical Area Program Maps and

Program Manual Maps incorporated by reference into the Harford County Code under Section 169-1A(1) of the Code, which were revised (1) as a result of updated natural resource information from the Maryland Department of Natural Resources and other cartographic baselayer information, and (2) in order to be consistent with the State of Maryland, be replaced with the attached Chesapeake Bay Critical Area Program Maps and Program Manual Maps, labeled **Attachment 3** for purposes of this legislation.

Section 6. And Be It Further Enacted that this Act shall take effect sixty (60) calendar days from the date it becomes law.

EFFECTIVE: April 9, 2024

The Council Administrator does hereby certify that seven (7) copies of this Bill are immediately available for distribution to the public and the press.

Mylia A. Dixon

Council Administrator

ATTACHMENT 1

Appendix H

Notification and Review Procedures for Projects in Harford County Involving Nontidal Wetlands

APPENDIX H

NOTIFICATION AND REVIEW PROCEDURES FOR PROJECTS IN HARFORD COUNTY INVOLVING NONTIDAL WETLANDS

Introduction

Nontidal wetlands are transitional environments existing as isolated entities or between open waters and dry land. They are associated with saturated soils and high groundwater levels and typically exhibit vegetation adapted to wet conditions and periodic flooding. Nontidal wetlands are now widely recognized as important natural resources, vital to maintaining and improving water quality and reducing flood damage, while providing habitat for many types of plants and animals.

State regulations have protected tidal wetlands since 1972, whereas nontidal wetlands legislation was not adopted until 1989. In response to the situation, Harford County Department ofPlanning and Zoning initiated, and the County adopted, a "Natural Resource District" (NRD) in 1982. The intent of the NRD is to preserve special environmental features through a watershed management approach. In the spring of 1985, formal amendments were presented to the County Council in Bill 85-12. On May 10, 1985, the bill was signed into law. Through this process, Harford County expanded the scope of its natural resources protection by adopting regulations which protect nontidal wetlands and stream valley corridors.

For the purpose of the definition in Bill 09-13, the County adopted the classification system developed by the United States Fish and Wildlife Service. Thus, nontidal wetlands are defined as all palustrine aquatic bed, palustrine emergent, palustrine forested, and palustrine scrub-shrub wetlands. These nontidal wetlands are lands that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas. The technical guidelines for determining the three parameters of nontidal wetlands (vegetation, soils, and hydrology) shall be followed in accordance with the U.S. Army Corps of Engineers 1987 Wetland Delineation Manual and the associated Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region.

Policy Regarding Development in Nontidal Wetlands

Harford County Department of Planning and Zoning has placed a substantial amount of its resources into developing a nontidal wetlands protection program. The Department has initiated a systematic approach to nontidal wetlands management providing for effective wetland protection and interagency coordination pertaining to project reviews. Through this process, Harford County has established, as described below, a policy regarding development in nontidal wetlands. Development in nontidal wetlands is subject to the provisions of the Harford County Zoning Code and several State and federal permit processes. By informing the development community of these requirements, the Department hopes to:

- educate the need to apply for appropriate State and federal permits;
- minimize costly and time-consuming revisions of development proposals; and
- avoid enforcement actions as a result of failure to apply for permits.

Nontidal Wetland Regulations

Development in nontidal wetlands is subject to County, State, and federal regulations. The following sections outline these regulations:

HARFORD COUNTY - Pursuant to the Natural Resource District (NRD) Section of the Zoning Code, Section 267-62, special environmental features outside of the Critical Area such as nontidal wetlands are to be preserved. NRD is defined in three ways:

(1) Steep slopes: any land area exceeding 40,000 square feet with a slope in excess of 25%.

(2) Nontidal wetlands: nontidal wetlands shall not be disturbed by development. A buffer of at least 75 feet shall be maintained in areas adjacent to wetlands.

(3) Streams: the Natural Resource District for all perennial and intermittent streams shall be a minimum of 75 feet on both sides, measured from the top of the streambank or 50 feet beyond the 100 year floodplain, whichever is greater. For all streams that have a drainage area of more than 400 acres, as depicted on the Harford County Hydrology/Drainage Area Map, which is incorporated herein by reference, the Natural Resource District shall be expanded to a minimum distance of 150 feet on both sides, measured from the top of the streambank or 50 feet beyond the 100 year floodplain, whichever is greater. The Natural Resource District boundaries under this provision shall include the buffer requirements of Subsection B(2).

Inside the Critical Area, nontidal wetlands are protected by the Critical Area Regulations as per Section 267-63.7. According to these regulations, development is not permitted in nontidal wetlands within the Critical Area except for permitted development associated with water-dependent facilities. A naturally vegetated buffer of 75 feet is to be established adjacent to nontidal wetlands. The location of roads, utilities and stormwater management measures may be permitted in nontidal wetlands if it is determined that there is no technically feasible alternative according to the procedures outlined in Section 267-63.7. For the purpose of the Harford County Zoning Code, nontidal wetlands are all palustrine aquatic bed, palustrine emergent, palustrine forested, and palustrine scrub- shrub wetlands as defined by the United States Fish and Wildlife Service. These nontidal wetlands are lands that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas. The technical guidelines for determining the three parameters of nontidal wetlands (vegetation, soils, and hydrology) shall be followed in accordance with the U.S. Army Corps of Engineers 1987 Wetland Delineation Manual and the associated Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region.

Hydric soils have a water table that is at or within one foot of the surface for extended periods during the growing season. These soils have a characteristic grey color which reflects anaerobic conditions. The Soil Conservation Service has evaluated the soil series in Harford County and has listed hydric soils, and soils with hydric inclusions in Chapter 2 of the Critical Area Program Manual. The effect of the Conservation Requirements under Section 267-63 of the Zoning Code is that nontidal wetlands shall not be disturbed by development. Essential access roads and other public facilities, however, may be placed in the NRD. In addition, an undisturbed buffer of at least 75 feet from the wetland perimeter must be maintained. Lot lines should not extend into the NRD area if the lots have an urban residential zoning.

STATE OF MARYLAND - The Wetlands and Waterways Program of the Maryland Department of the Environment (MDE) administers a permit process for waterway construction which is often applicable to development in wetlands. For the purpose of the MDE process, wetlands are defined according to any of the three attributes (vegetation, soils, hydrology) of the wetland definition used by the federal government. Section 8-803 of the Natural Resources Article of the Annotated Code of Maryland requires that a person shall obtain a nontidal waterway construction permit from MDE for any construction in the 100-year floodplain, or any development which involves stream crossings or modification of the stream channel.

If a project requires a Corps of Engineers (COE) permit, as described below, three State of Maryland approvals must be obtained. First, Applicants for federal permits are required to certify that their project is consistent with the Coastal Zone Management Program. The State of Maryland is required to concur or disagree with this certification. The boundaries of Maryland's Coastal Zone Program include the entire land and water area of Harford County. The statement of certification of consistency with the Coastal Zone Management Program is a part of the Joint Permit Application form described below.

Second, a State Water Quality Certificate will be required from MDE. Under Section 401 of the Federal Clean Water Act, the State of Maryland is required to issue a Water Quality Certification for any federally permitted activity which may result in a discharge of dredged or fill material to State waters or wetlands. This certifies that the activity will not cause a violation of the State water quality standards or limitations. Application for Water Quality Certification is made through the Joint Wetland Permit application described below.

Third, Sections 8-1201 through 8-1211 of the Natural Resources Article of the Annotated Code of Maryland require that a person obtain a Nontidal Wetland Permit from MDE for grading, filling, excavating, destroying or removing vegetation, altering the water level, or placing structures in a nontidal wetland or its 25-foot buffer. Application for this Permit is made jointly with the COE 404 Wetland Permit described below. The Applicant submits a completed Joint MDE/COE Application form to the Wetlands and Waterways Program. This Application Form contains all the information required for the State of Maryland and Federal nontidal wetlands regulatory programs.

FEDERAL GOVERNMENT - Federal regulations pertaining to development in nontidal waterways and wetlands are considerable. The following description of the major applicable federal regulations is excerpted from information published by the COE.

> "Section 404 of the Clean Water Act requires prior authorization from the Secretary of the Army acting through the COE for the discharge of dredged or fill material into all waters of the United States, including streams and wetlands. Discharge of fill material generally includes, without limitation, the following activities: placement of fill that is necessary to the construction of any structure or impoundment; site-development fills for recreations, industrial, commercial, residential, and other uses; causeways or road fills; dams and dikes....; property protection and/or reclamation devices such as riprap; fill associated with the creation of ponds and any other work involving the discharge of fill material."

The COE suggests that the following procedure be used to prepare a preliminary plan showingall waterways and wetlands for COE review.

> "It is suggested that you review the State Maps and the U.S. Fish and Wildlife Service National Wetlands Inventory Maps (contact the Planning and Zoning office). Wetlands were mapped by aerial photography but are not all inclusive. You should review all areas of your site with respect to the COE definitions of wetlands. Any area that has hydric soils should be included. Two year and 100 year flood plain boundaries should also be shown."
>
> "Clearly show if any work is proposed in any waterway (i.e. piers, bulkheads, riprap, dredging, road crossings) or in any wetlands (i.e. fill for houses and roads). A general site development plan showing only where the lots are located is not clear enough."
>
> "Upon receipt of the above information, this office will review the plans and determine if the work requires Department of the Army authorization."

Application for a 404 Wetlands Permit is made through the Joint Permit Process describedabove. Additional information concerning the COE permit process can be obtained from the Baltimore District Office of the COE.

Maryland State Programmatic General Permit

The Maryland State Programmatic General Permit was granted by the COE to Maryland Department of The Environment to simplify permitting procedures for activities determined to have minimal impacts to aquatic resources, including wetlands. Activities meeting the determined activity thresholds be reviewed and authorized by the Maryland Department of the Environment for the COE.

Wetland Delineation and Permit Application Procedures

The Department of Planning and Zoning suggests that the following procedures be used to assure

compliance with applicable County, State, and federal regulations and to prevent delays in project review and approval. The engineers are familiar with the various base maps which may be useful. The Department has the following data available to download from the County website:

- Photogrammetric Maps;
- Digital
- Orthophotography; Floodplain Maps;
- USDA SSURGO Soils Maps;
- National Wetland Inventory Maps;
- Harford County LIDAR. and
- Harford County Hydrology /Drainage Area Maps

Additional data may also be available on the Watershed Resources Registry website and

Maryland DNR Merlin website.

STEPS:

(1) Prepare a standard project plan map of the development parcels using the County photogrammetric maps. Delineate any slopes in excess of 25%.

(2) Transfer the general soil series to the project plan map. Identify hydric soils and those with hydric inclusions or other soils with severe development constraints due to slope, erodibility, or drainage/ permeability characteristics.

(3) Consult the Critical Area, Floodplain, and NRD maps; the State Wetland Maps; and the Fish and Wildlife Service Wetland Map. Transfer any delineated wetland or floodplain to the project plan map.

(4) Transfer all perennial and intermittent streams shown on the soil survey maps, the USGS topographic quadrangles, and the photogrammetric maps.

(5) A detailed field report should be submitted which must be consistent with the NRD and Critical Area regulations, as described in sections 267-62 and 267-63 of the Harford County Zoning Code. It is recommended that the following procedures be used to assure compatibility and compliance needed prior to project approvals. A trained, experienced biologist or soil scientist should be consulted to perform a field check and delineation of nontidal wetlands. The characteristics referenced below should be evaluated pursuant to the following guidelines:

Hydrology

- Identify existing surface and groundwater regimes. Delineate areas with perennial

and intermittent streams as candidates for nontidal wetlands.

- Identify any significant hydrological indicators. (i.e., site topography, watermarks, sediment deposition, etc.)
- Identify any additional field-located water features. (i.e., springs, seeps, ponds.)

Soils

- Soil indicators used to determine whether soils exhibit a wetland within a given area to be identified. (i.e., organic, hydric, gleying, etc.)
- It is suggested that soil borings be taken to a depth of 18 inches documenting characteristics of the soil profile. This description should include hue, chroma, value of the matrix and redoximorphic features and hydric soils field indicators. mottling and chroma characteristics. Any seasonal high water table elevation that is encountered should also be described in the report.

Vegetation

- A survey of dominant plant species within the subject area, with specific attention to Plant indicator Status (upl, facu, fac, facw, obl) wetland vs. upland vegetation should be performed.

Delineation Procedures

The field delineation should be mapped at the same scale as the project plan map and with direct reference to wetland (hydrophytic) vegetation hydric soils and hydrology as defined in the Harford County Zoning Code. The following procedures are suggested:

- Appropriate recordation and perimeter flagging of nontidal wetlands.
- As necessary, flags and/or stakes should be numbered and referenced as part of the records keeping process. (i.e., soil borings, vegetative communities)
- Soil and plant lists containing the types and species should accompany the field report.

(6) The Department considers large tracts of land containing interconnected wetland systems to be very essential in watershed protection. In such cases, the Department may request that the 75 foot buffer be flagged during the field delineation phase.

(7) Areas delineated as nontidal wetlands and 75 foot buffers should be shown on Sediment and Erosion Control Plans and Stormwater Management Plans submitted to Harford Soil Conservation District. Plans will be subject to a cursory in-house review among various County departments such as the Departments of Planning and Zoning (DPZ) and Public Works (DPW).

(8) Transfer all woodland and other vegetation shown on the photogrammetric maps and the most recent aerial photographs. Refinements to the woodland boundary as shown on the field report must also be consistent with the project plan map.

(9) Design the roads, building envelopes, stormwater management facilities and any other structures so as to avoid the 100-year floodplain/NRD, streams, nontidal wetlands, and Critical Area Habitat Protection Areas. Development that impacts streams and wetlands is subject to the conservation requirements of the NRD and Critical Area Management Program of the Zoning Code and will likely require State and federal permits. Essential road and utility crossings of floodplains, streams, or nontidal wetlands may be granted a permit if the applicant can demonstrate that alternatives are not feasible and that the minimum amount of intrusion is proposed. Contact the DPW for information about alternative designs for stormwater management.

(10) Submit the concept or preliminary plan and field report to the Department for review. Plans will be subjected to a cursory in-house review before they will be scheduled for review by the Development Advisory Committee (DAC). This initial check will serve to identify major features and the adequacy of the submission. Detailed review will be performed in conjunction with DAC.

(11) Label areas delineated as nontidal wetlands, Critical Area Habitat Protection Areas, or NRD on the plans submitted for review. These areas may be counted toward the open space requirement if the development employs the COS option. Active recreation areas may not be located in wetlands. The Homeowners' Association documents for maintenance of open space and other facilities should indicate that the nontidal wetlands will be left undisturbed.

(12) Upon receipt of a plan and field report delineating a floodplain/NRD or nontidal wetland, staff of the Department of Planning and Zoning will verify the delineation by field visit (see verification procedures section).

(13) File an application for a Joint State and COE permit even if the development has been designed initially to avoid sensitive environmental features. The COE and MDE will determine whether a permit is required. If a permit is required, the COE may conduct a field visit to determine the extent and significance of the wetlands. Failure to apply for a permit may result in an enforcement action if the development is found later to have filled a water area or wetland. All applicable State and federal permits or certifications should also be submitted as part of the application package to the Department of Planning and Zoning.

ATTACHMENT 2

Appendix I

Habitat Protection Areas for the Harford County Critical Area

Habitat Protection Areas for the Harford County Critical Area

Listed Species Sites
(Threatened and Endangered Species,
Species In Need of Conservation)

Locally Significant Habitats

Colonial Waterbirds

Listed Species Sites (site in bold is new):

Boyer Road Shoreline 2
Gunpowder Shore 4
I-95 Crossing 6
Lower Deer Creek 8
Lower Susquehanna 10
Northern Susquehanna Canal 12
Oakington Shore 14
Otter Point Creek 16
South Lapidum 18
Stafford Road Slopes 20
Swan Creek 22

Locally Significant Habitats:

Belcamp Beach 25
Grays Run 27
Leight Park Site 29
Perryman Woods 31
Swan Creek Point 33
Willoughby Woods 34

Colonial Waterbirds:

Great Blue Heron Colonies 37

Maryland Natural Heritage Program
Wildlife and Heritage Service
Department of Natural Resources
Tawes State Office Building, E-1
Annapolis, MD 21401

August 2023

Boyer Road Shoreline

County: Harford

BioNet Tier: 2
Size: 76 ac

Key Wildlife Habitats

- Coastal Beach
- Intertidal Mudflat and Sandflat
- Tidal Freshwater Marsh and Shrubland

Important Features

- Small waterwort (*Elatine minima,* highly state rare*)
- Mudwort (*Limosella australis*, state-listed as Endangered)
- Parker's pipewort (*Eriocaulon parkeri*, state-listed as Threatened)
- Maryland bur-marigold (*Bidens bidentoides*, watchlist)

Ecological Significance

The shallow, sandy-bottomed, intertidal zone at Boyer Road Shoreline supports two rare species, listed as Endangered in Maryland, mudwort (*Limosella australis*, state-listed as Endangered) and small waterwort (*Elatine minima*, highly state rare*). The mudwort is a small plant of mudflats which is found in several locations in Cecil County, but Boyer Road Shoreline is the only known location in Harford County. The small waterwort, also a minute plant of muddy and sandy shores, is very rare in Maryland. Parker's pipewort (*Eriocaulon parkeri*), a small plant listed as Threatened in Maryland, also grows in the intertidal area, as does Maryland bur-marigold (*Bidens bidentoides*, watchlist).

The Maryland bur-marigold is a globally rare regional endemic, found only from Maryland northward to New York. It has narrow habitat requirements – tidal mud flats along river edges. In Maryland, this species is limited to tidal marshes of the upper Chesapeake Bay and its tributaries, which makes conservation of Harford County's populations essential to the survival of the species in Maryland.

The habitat of all these rare and uncommon plants is a relatively flat intertidal shoreline with a sandy or muddy substrate. Due to shoreline development and stabilization, this natural shoreline is now very rare in Harford County. Because of the exceptional quality of the habitat, the presence of several rare and uncommon species, and the lack of human disturbance, Boyer Road Shoreline is among the most significant sites in Harford County.

Site Management Considerations

The effects of climate change, such as sea-level rise, increased intensity of coastal flooding, and changes in sediment deposition, will be one of the greatest threats to this coastal wetland /aquatic system. The adjacent uplands and nearby shoreline habitats may

affect the stability and composition of intertidal flats, as well as their ability to shift by migrating inland or along the shoreline as the sea level rises. Additional threats include the construction of structures in the intertidal zone, the clearing of vegetation in the upland buffer, excessive boat wakes, and the landing of boats on the shoreline during the growing season.

This site is designated as a habitat protection area for state-listed species under the Chesapeake Bay Critical Area Regulations (COMAR 27.01.09.03).

The Maryland Department of Natural Resources' Natural Heritage Program and cooperative partners completed a State Wildlife Action Plan in 2015 as a requirement of State Wildlife Grant funding. The plan details key wildlife habitats, natural communities, and Species of Greatest Conservation Need (SGCN) statewide, and provides information on threats and conservation needs of Maryland's wildlife resources and supporting habitats. For more information, the full Plan can be accessed at http://dnr.maryland.gov/wildlife/Pages/plants_wildlife/SWAP_Submission.aspx.

*The specific status of *Elatine minima* is "highly state rare?" which indicates some uncertainty as to the exact level of its rarity.

Gunpowder Shore

County: Harford

BioNet Tier: 2
Size: 42 ac

Key Wildlife Habitats

- Coastal Beach
- Intertidal Mudflat and Sandflat
- Tidal Freshwater Marsh and Shrubland

Important Features

- Parker's pipewort (*Eriocaulon parkeri*, state-listed as Threatened in Maryland)
- Spongy lophotocarpus (*Sagittaria spatulata*, state rare)

Ecological Significance

Gunpowder Shore contains an ecologically fragile intertidal zone consisting of a mixture of cobble, sand, and mud. The sandy intertidal zone supports a very large population of Parker's pipewort (*Eriocaulon parkeri*), a globally rare plant species which is listed as Threatened in Maryland. This species occurs in several locations on the eastern shore, but only in three locations on the western shore, all in Harford County. This population is by far the largest on the western shore. The sandy-bottomed intertidal habitat also supports spongy lophotocarpus (*Sagittaria spatulata*, state rare). Due to shoreline development and stabilization, this type of natural shoreline is now very rare in Harford County.

Site Management Considerations

The effects of climate change, such as sea-level rise, increased intensity of coastal flooding, and changes in sediment deposition, will be one of the greatest threats to this coastal wetland /aquatic system. The adjacent uplands and nearby shoreline habitats may affect the stability and composition of intertidal flats, as well as their ability to shift by migrating inland or along the shoreline as the sea level rises. Additional threats include the construction of structures in the intertidal zone, the clearing of vegetation in the upland buffer, excessive boat wakes, and the landing of boats on the shoreline during the growing season.

This site is designated as a habitat protection area for state-listed species under the Chesapeake Bay Critical Area Regulations (COMAR 27.01.09.03).

The Maryland Department of Natural Resources' Natural Heritage Program and cooperative partners completed a State Wildlife Action Plan in 2015 as a requirement of State Wildlife Grant funding. The plan details key wildlife habitats, natural communities, and Species of Greatest Conservation Need (SGCN) statewide, and provides information on threats and conservation needs of Maryland's wildlife resources and supporting

habitats. For more information, the full Plan can be accessed at http://dnr.maryland.gov/wildlife/Pages/plants_wildlife/SWAP_Submission.aspx.

I-95 Crossing

County: Harford

BioNet Tier: 3
Size: 469 ac

Key Wildlife Habitats

- Cliffs and Rock Outcrops
- Montane-Piedmont Floodplain

Important Features

- Northern map turtle (*Graptemys geographica*, state-listed as Endangered)
- Forest interior dwelling species (FIDS) habitat

Ecological Significance

I-95 Crossing includes an old, unused railroad bed (about ten feet high) which runs along the Susquehanna River and the long, narrow wetland complex to the west of this railroad bed. A portion of this wetland complex consists of the old Susquehanna Canal, which flows through a flat, floodplain woodland. To the south of this woodland, a very diverse emergent marsh with standing dead trees can be found. Steep, wooded slopes border the wetland complex to the west. These slopes contain many rocky outcrops. Scattered Eastern hemlocks (*Tsuga canadensis*), which are indicative of a cool microclimate, grow in the rock crevices on some of these outcrops.

The wetlands, tributaries, old canal, and Susquehanna River shoreline of I-95 Crossing provide suitable habitat for the northern map turtle (*Graptemys geographica*). This mostly aquatic turtle is currently listed as an Endangered species in Maryland. It can be seen basking on logs or along the banks of the Susquehanna. In Maryland, this endangered turtle is restricted to the Susquehanna River watershed.

One of the notable features of the I-95 Crossing area is the steep, northeast-facing slopes which occur to the west of the wetlands. Extensive northeast-facing slopes such as the ones found within this area are unique in the Piedmont province of Maryland and occur only on the Harford County side of the Susquehanna River. The Eastern hemlocks which grow in the rocky crevices along the slopes indicate that the slopes have a cool, moist microclimate and thus are likely to provide habitat for other rare or uncommon species that have adapted to these unusual conditions.

An additional value of I-95 Crossing is that it provides habitat for forest interior dwelling birds (FIDS). FIDS require large, contiguous blocks of forest to successfully reproduce, and populations of many FIDS are declining. Most FIDS are neotropical migrants, birds that travel long distances to breed in North America and winter in Central and South America. Forest interior dwelling birds that have been observed on the site include red-eyed vireo, Acadian flycatcher, ovenbird, and northern parula.

Site Management Considerations

Principal threats to the site include sediment and stormwater runoff from adjacent uplands which could degrade the quality of the wetlands and tributaries on which the rare Map turtle depends. Also, the expansion of the adjacent quarry could lower the water table, which could, in turn, alter the hydrology of the wetlands. Other threats to I-95 Crossing are activities which could alter the character of the steep slopes, or reduce the habitat value of the site for forest interior dwelling birds. Timber harvesting on the site should not occur on slopes of 15% or greater to prevent a change in the microclimate or species composition of the steep slopes. Substantial removal of forest cover immediately above the steep slopes, which could also alter this microclimate, should be avoided.

This site is designated as a habitat protection area for state-listed species under the Chesapeake Bay Critical Area Regulations (COMAR 27.01.09.03). Certain wetlands and their adjacent 100 foot upland buffer at this site are regulated as Wetlands of Special State Concern by the Maryland Department of the Environment (COMAR 26.23.06.02).

The Maryland Department of Natural Resources' Natural Heritage Program and cooperative partners completed a State Wildlife Action Plan in 2015 as a requirement of State Wildlife Grant funding. The plan details key wildlife habitats, natural communities, and Species of Greatest Conservation Need (SGCN) statewide, and provides information on threats and conservation needs of Maryland's wildlife resources and supporting habitats. For more information, the full Plan can be accessed at http://dnr.maryland.gov/wildlife/Pages/plants_wildlife/SWAP_Submission.aspx.

Lower Deer Creek

County: Harford

BioNet Tier: 1
Size: 8,243 ac

Key Wildlife Habitats

- Piedmont Stream
- Montane-Piedmont Floodplain
- Cliff and Rock Outcrop
- Mesic Mixed Hardwood Forest
- Montane-Piedmont Acidic Seepage Swamp

Important Features

- Chesapeake logperch (*Percina bimaculata*, state-listed as Threatened)
- Habitat for Maryland darter (*Etheostoma sellare*, federally listed as Endangered, state-listed as Endangered)
- Single-headed pussytoes (*Antennaria solitaria*, state-listed as Threatened)
- Rapids clubtail (*Phanogomphus quadricolor*, state-listed as In Need of Conservation) and other rare dragonflies
- Forest interior dwelling species (FIDS) habitat

Ecological Significance

Lower Deer Creek flows into the Susquehanna River from its origin in Pennsylvania. The Deer Creek watershed is rural, consisting primarily of agricultural fields and forestland, with some scattered development, and was designated by the state legislature as a Scenic River in 1973 in recognition of its rural character. The lower portion is a healthy body of water with good forest buffer along the riverbanks. This section is low in gradient with rocky riffles, sandy runs, and some scattered sandy pools. The aquatic habitat is very diverse, including silt, sand, gravel, and boulder areas, and much of the creek bottom is vegetated, especially in shallower areas. Pools and runs in the creek are attractive resting areas for spring migratory hickory shad and river herring, causing Deer Creek to be a popular springtime fishing destination. The creek is stocked with hatchery trout but becomes too warm for trout survival in the summer, at which point the trout swim into the Susquehanna River.

Historically, Deer Creek supported spawning runs of anadromous fish such as hickory shad, white perch, yellow perch, alewife, and blueback herring, but a private dam built on Deer Creek blocked approximately 25 miles of spawning habitat from these anadromous fishes. Installation of a fish ladder re-opened historic anadromous fish spawning habitat in Deer Creek in 2000. Since the opening of the fish ladder, all of the historical species of anadromous fishes that ascended Deer Creek to spawn have been documented passing through the fish ladder.

Deer Creek was the last known habitat of the Maryland darter (*Etheostoma sellare*, federally listed as Endangered, state-listed as Endangered), the only vertebrate endemic

to Maryland. This species was last sighted in 1988, but recurring survey efforts hope to rediscover the fish in this good quality habitat. Three other rare fish species, the shortnose sturgeon (*Acipenser brevirostrum,* state and federally-listed as Endangered), the Atlantic sturgeon (*Acipenser oxyrhynchus,* state and federally-listed as Endangered), and the Chesapeake logperch (*Percina bimaculata,* state-listed as Threatened), use Deer Creek for spawning. The Chesapeake logperch has a restricted distribution in Cecil and Harford Counties and maintains a healthy population in the lower section of Deer Creek.

Parts of the creek are surrounded by ecologically valuable terrestrial habitat, including mature hardwood forests that provide habitat for forest interior dwelling birds (FIDS). FIDS require large, contiguous blocks of forest to successfully reproduce, and populations of many FIDS are declining. Most FIDS are neotropical migrants, birds that travel long distances to breed in North America and winter in Central and South America. Forest interior dwelling bird species observed in these woods include red-eyed vireos, ovenbird, scarlet tanagers, and Acadian flycatchers.

The rare plant single-headed pussytoes (*Antennaria solitaria*, state-listed as Threatened) grows on forested slopes above the creek. This occurrence of pussytoes is the largest population of this plant in Maryland and one of the most northern known populations for this species throughout its range.

Upstream from the Chesapeake Bay Critical Area, seasonally flooded seepage swamps and floodplains along the creek provide habitat for dragonflies and damselflies, as well as some rare wetland plants such as ostrich fern (*Matteuccia struthiopteris*, state rare) and the butternut tree (*Juglans cinerea*, state rare).

Site Management Considerations

The Deer Creek Watershed Restoration Action Strategy identifies management needs and actions for the watershed to reduce nutrient and sediment input, establish and maintain riparian buffers, conserve and restore forest cover, address stormwater runoff and restore stream hydrology in the watershed.

This site is designated as a habitat protection area for state-listed species under the Chesapeake Bay Critical Area Regulations (COMAR 27.01.09.03). Certain wetlands and their adjacent 100 foot upland buffer at this site are regulated as Wetlands of Special State Concern by the Maryland Department of the Environment (COMAR 26.23.06.02).

The Maryland Department of Natural Resources' Natural Heritage Program and cooperative partners completed a State Wildlife Action Plan in 2015 as a requirement of State Wildlife Grant funding. The plan details key wildlife habitats, natural communities, and Species of Greatest Conservation Need (SGCN) statewide, and provides information on threats and conservation needs of Maryland's wildlife resources and supporting habitats. For more information, the full Plan can be accessed at http://dnr.maryland.gov/wildlife/Pages/plants_wildlife/SWAP_Submission.aspx.

Lower Susquehanna

County: Harford

BioNet Tier: 1
Size: 4,089 ac

Key Wildlife Habitats

- Piedmont River
- Montane-Piedmont Floodplain

Important Features

- Shortnose sturgeon (*Acipenser brevirostrum*, state-listed as Endangered, federally listed as Endangered)
- Atlantic sturgeon (*Acipenser oxyrinchus*, state-listed as Endangered, federally listed as Threatened)
- Chesapeake logperch (*Percina bimaculata*, state-listed as Threatened)
- Northern map turtle (*Graptemys geographica*, state-listed as Endangered)

Ecological Significance

The Lower Susquehanna is an aquatic site encompassing the Susquehanna River from the Conowingo Dam downstream to the I-95 bridge crossing. This portion of the river is diverse in both flow and substrate – from high velocity riffles snaking through boulder and bedrock below the dam to slow water, almost lentic habitats over sand and submerged vegetation near the I-95 bridge. This variety in both flow and substrate creates diverse habitat for a variety of important fisheries and aquatic resources. Several rare fishes are found here, including shortnose sturgeon (*Acipenser brevirostrum*, state and federally listed as Endangered), Atlantic sturgeon (*Acipenser oxyrinchus*, state-listed as Endangered, and federally listed as Threatened), and the globally rare Chesapeake logperch (*Percina bimaculata*, state-listed as Threatened). The northern map turtle (*Graptemys geographica*, state-listed as Endangered) can be seen basking on logs or along the riverbanks. It uses numerous islands in the river, as well as the river shore areas for breeding. In Maryland, this aquatic turtle is restricted to the Susquehanna River watershed. However, it also occurs northward along the floodplain well into Pennsylvania.

In addition to providing important habitats for these imperiled species, the lower Susquehanna River, including the lower portions of Deer Creek, provide spawning habitat for important fisheries including migratory alewife, blueback herring, American and hickory shad. The submerged aquatic grass beds of the lower Susquehanna, as well as the Susquehanna Flats, located off of the city of Havre de Grace, are a critical nursery ground for Maryland's state fish, the striped bass.

Site Management Considerations

The effects of climate change, such as increased intensity of storms, rainfall, and flooding events are among the greatest threats to this aquatic system. The water quality and hydrology in this section of the Susquehanna River is the cumulative result of numerous

effects upstream in the vast drainage basin of the river in Maryland, Pennsylvania, and New York. Many aspects of water quality and hydrology are also greatly influenced and partly controlled by the presence and management of multiple dams along the Susquehanna, including Conowingo Dam. Numerous efforts underway to reduce sedimentation and nutrient input, establish and maintain riparian buffers, and conserve and restore forest cover in the watershed are vital to maintaining and restoring aquatic habitat in the Lower Susquehanna.

The Maryland Department of Natural Resources' Natural Heritage Program and cooperative partners completed a State Wildlife Action Plan in 2015 as a requirement of State Wildlife Grant funding. The plan details key wildlife habitats, natural communities, and Species of Greatest Conservation Need (SGCN) statewide, and provides information on threats and conservation needs of Maryland's wildlife resources and supporting habitats. For more information, the full Plan can be accessed at http://dnr.maryland.gov/wildlife/Pages/plants_wildlife/SWAP_Submission.aspx.

Northern Susquehanna Canal

County: Harford

BioNet Tier: 2
Size: 323 ac

Key Wildlife Habitats

- Cliffs and Rock Outcrop
- Mesic Mixed Hardwood Forest
- Montane-Piedmont Floodplain

Important Features

- Short's rockcress (*Borodinia dentata,* watchlist)
- Starflower Solomon's-plume (*Maianthemum stellatum,* state-listed as Endangered)
- Sweet-scented Indian-plantain (*Senecio suaveolens,* state-listed as Endangered)
- Valerian (*Valeriana pauciflora,* state-listed as Endangered)
- Forest interior dwelling species (FIDS) habitat

Ecological Significance

Northern Susquehanna Canal is a long narrow site following the western shore of the Susquehanna River for almost three miles. The historic old Susquehanna Canal and the abandoned railroad tracks run the entire length of the site. This site contains a mature floodplain forest dominated by large trees such as sycamore, silver maple, and green ash. In spring, the ground is covered with colorful wildflowers such as Virginia bluebells, golden ragwort, and erect trillium. Northern Susquehanna Canal contains populations of many rare plant species, such as Short's rockcress (*Borodinia dentata,* watchlist), starflower Solomon's-plume (*Maianthemum stellatum,* state-listed as Endangered), sweet-scented Indian-plantain (*Senecia suaveolens,* state-listed as Endangered), and valerian (*Valeriana pauciflora,* state-listed as Endangered). In addition, the rich soils of the floodplain forest support glade fern (*Diplazium pycnocarpon*), a species which is listed as Threatened in Maryland. This site harbors the only known occurrences in Harford County and the largest extant populations along Maryland's Susquehanna River of all four species. Northern Susquehanna Canal also harbors one of the largest populations in the state of ostrich fern (*Matteuccia struthiopteris,* state rare).

The mature forest covering the bottomland along the Northern Susquehanna Canal provides exemplary breeding habitat for forest interior dwelling birds (FIDS). FIDS require large, contiguous blocks of forest to successfully reproduce, and populations of many FIDS are declining. Most FIDS are neotropical migrants, birds that travel long distances to breed in North America and winter in Central and South America. Fourteen species of these birds have been observed on the site, five of which are listed as indicators of high-quality habitat: hooded warbler, Kentucky warbler, worm-eating warbler, American redstart, and Louisiana waterthrush. This site also provides excellent habitat for other birds, including bald eagle, wood duck, great blue heron, and green heron. Most of this site occurs within Susquehanna State Park.

Site Management Considerations

The floodplain forest is vulnerable to encroachment by invasive species. The rich floodplain soils and regular disturbance by flooding promote the growth of multiflora rose and other invasive plants that crowd out the rare plants. Control of invasive plants is important to maintain the rare plant populations. Invasive groundcovers such as periwinkle reduce the quality of habitat for ground nesting birds, including FIDS that are declining in the region.

This site is designated as a habitat protection area for state-listed species under the Chesapeake Bay Critical Area Regulations (COMAR 27.01.09.03). Certain wetlands and their adjacent 100 foot upland buffer at this site are regulated as Wetlands of Special State Concern by the Maryland Department of the Environment (COMAR 26.23.06.02).

The Maryland Department of Natural Resources' Natural Heritage Program and cooperative partners completed a State Wildlife Action Plan in 2015 as a requirement of State Wildlife Grant funding. The plan details key wildlife habitats, natural communities, and Species of Greatest Conservation Need (SGCN) statewide, and provides information on threats and conservation needs of Maryland's wildlife resources and supporting habitats. For more information, the full Plan can be accessed at http://dnr.maryland.gov/wildlife/Pages/plants_wildlife/SWAP_Submission.aspx.

Oakington Shore

County: Harford

BioNet Tier: 2
Size: 149 ac

Key Wildlife Habitats

- Coastal Beach
- Intertidal Mudflat and Sand Flat
- Mesic Mixed Hardwood Forest
- Tidal Freshwater Marsh and Shrubland

Important Features

- Parker's pipewort (*Eriocaulon parkeri*, state-listed as Threatened)
- Maryland bur-marigold (*Bidens bidentoides*, watchlist)
- Forest interior dwelling species (FIDS) habitat

Ecological Significance

The most notable features of the Oakington Shore area are two tidal coves which open directly into Chesapeake Bay. The intertidal zone of these coves is largely undisturbed and consists of a mixture of sand, pebbles, and mud. Some stretches of the sandy-bottomed coves are vegetated with threesquare bulrush, switchgrass, dotted smartweed, and water willow. These sandy coves along the tidal shoreline support two globally rare plant species. One of the rare plants, Parker's pipewort (*Eriocaulon parkeri*) is listed as Threatened in Maryland. The other species, Maryland bur-marigold (*Bidens bidentoides*, watchlist) is a globally rare regional endemic, found from Maryland northward to New York. It has narrow habitat requirements – tidal flats along river edges. In Maryland, this species is limited to tidal marshes of the upper Chesapeake Bay and its tributaries, which makes conservation of Harford County's populations essential to the survival of the species in Maryland.

Oakington Shore includes tidal wetlands on both sides of the shallow coves. Scattered patches of submerged aquatic vegetation, such as hydrilla, Eurasian watermilfoil, and wild celery, occur in the coves. The southernmost of these wetlands consists of a young forest dominated by red maple and sweetgum transitioning to a more open wetland dominated by arrow arum, halberd-leaved tearthumb, and swamp rosemallow. A drier beech-oak forest with an understory of flowering dogwood occurs in the ravines above the wetlands. The forest is high quality habitat for forest interior dwelling species (FIDS). FIDS require large, contiguous blocks of forest to successfully reproduce, and populations of many FIDS are declining. Most FIDS are neotropical migrants, birds that travel long distances to breed in North America and winter in Central and South America.

Site Management Considerations

The effects of climate change, such as sea-level rise, increased intensity of coastal flooding, and changes in sediment deposition are among the greatest threats to this

coastal wetland /aquatic system. The condition of adjacent uplands and nearby shoreline habitats may affect the stability and composition of intertidal flats, as well as their ability to shift by migrating inland or along the shoreline as the sea level rises. Additional threats include the construction of structures, such as for shoreline stabilization, in the intertidal zone, the clearing of vegetation in the upland buffer, excessive boat wakes, and the landing of boats on the shoreline during the growing season.

Most of the Oakington Shore area is located in Swan Harbor Farm and is owned by Harford County. This site is designated as a habitat protection area for state-listed species under the Chesapeake Bay Critical Area Regulations (COMAR 27.01.09.03). Certain wetlands and their adjacent 100 foot upland buffer at this site are regulated as Wetlands of Special State Concern by the Maryland Department of the Environment (COMAR 26.23.06.02).

The Maryland Department of Natural Resources' Natural Heritage Program and cooperative partners completed a State Wildlife Action Plan in 2015 as a requirement of State Wildlife Grant funding. The plan details key wildlife habitats, natural communities, and Species of Greatest Conservation Need (SGCN) statewide, and provides information on threats and conservation needs of Maryland's wildlife resources and supporting habitats. For more information, the full Plan can be accessed at http://dnr.maryland.gov/wildlife/Pages/plants_wildlife/SWAP_Submission.aspx.

Otter Point Creek
County: Harford

BioNet Tier: 3
Size: 691 ac

Key Wildlife Habitats

- Coastal Plain Stream
- Mesic Mixed Hardwood Forest
- Coastal Plain Floodplain
- Tidal Freshwater Marsh and Shrubland

Important Features

- Creeper (*Strophitus undulatus*, state-listed as In Need of Conservation)
- Alewife Floater (*Utterbackiana implicata*, watchlist)
- Comely Shiner (*Notropis amoenus*, watchlist)
- Primrose-willow (*Ludwigia decurrens*, state rare)
- Engelmann's Arrowhead (*Sagittaria engelmanniana*, state-listed as Threatened)
- Spongy Arrowhead (*Sagittaria spatulata*, state rare)
- Forest interior dwelling species (FIDS) habitat

Ecological Significance

One of the largest remaining freshwater tidal marshes within the upper Chesapeake Bay can be found at Otter Point Creek. The marsh here includes a large stand of wild rice that attracts a variety of resident and migratory wildlife. Near the mouth of Haha Branch the marsh harbors populations of Engelmann's arrowhead (*Sagittaria engelmanniana*, state-listed as Threatened) and spongy arrowhead (*Sagittaria spatulate*, state rare) in the shallow waters along the intertidal zone.

The Otter Point Creek area also contains an extensive forested wetland dominated by sycamore, silver maple, and river birch. In canopy openings, the saturated soil supports emergent species such as mud plantain, cardinal flower, and Turk's-cap lily. Along the open shoreline are swamp buttercup, sweetflag, and sneezeweed.

An emergent nontidal wetland in the Otter Point Creek area harbors an exceptionally vigorous population of primrose-willow (*Ludwigia decurrens*), a state rare herbaceous plant. This southern species is near the northern edge of its range in Maryland. It occurs in several counties in southern Maryland, but is known from only one other site in Harford County.

Farther upstream, Otter Point Creek provides quality aquatic habitat for rare and declining freshwater mussels, such as creeper (*Strophitus undulatus*, state-listed as In Need of Conservation) and alewife floater (*Utterbackiana implicata*, watchlist). Freshwater fishes living in this creek include comely shiner (*Notropis amoenus*, watchlist), and may still include a small, remnant population of the globally rare

Chesapeake logperch (*Percina bimaculata*, state-listed Threatened), which was last found here in 1948.

The varied wetland habitats of this site include forested wetlands, old ponds bordered by aquatic and emergent vegetation, nontidal marshes, and freshwater tidal marshes. The large, unbroken tract of deciduous forest wetland provides excellent habitat for forest interior dwelling birds and mammals. Forest interior breeding birds known from Otter Point Creek include prothonotary warbler and scarlet tanager. Despite being located in a highly-developed part of the county, a variety of mammals inhabit the area, including beaver, muskrat, mink, and river otter.

Site Management Considerations

Part of this area is within the 350-acre Bosely Conservancy, owned and managed by the Harford County chapter of the Izaak Walton League, a private conservation organization. This site is also a component of the Chesapeake Bay National Estuarine Research Reserve. In the past, Otter Point Creek has been designated as a locally significant habitat under the Chesapeake Bay Critical Area Regulations (COMAR 27.01.09.03), and now qualifies as a listed species site in the Critical Area.

Sedimentation from local road construction and other construction projects, as well as and runoff from Pulaski Highway (US-40) threaten the water quality of the Otter Point Creek area. Invasive weedy species such as multiflora rose (*Rosa multiflora*) are well established on the trails along the creek. The area is popular with fishermen and local residents.

Recommendations for management of this site include regular monitoring of the water quality, employing supplemental sediment and erosion control measures for construction projects and other activities that require vegetation clearing, maximizing infiltration of stormwater, minimizing forest clearing, controlling the multiflora rose and other invasive species along the trails, and monitoring local trails for potential impacts to the rare species population.

The Maryland Department of Natural Resources' Natural Heritage Program and cooperative partners completed a State Wildlife Action Plan in 2015 as a requirement of State Wildlife Grant funding. The plan details key wildlife habitats, natural communities, and Species of Greatest Conservation Need (SGCN) statewide and provides information on threats and conservation needs of Maryland's wildlife resources and supporting habitats. For more information, the full Plan can be accessed at http://dnr.maryland.gov/wildlife/Pages/plants_wildlife/SWAP_Submission.aspx.

South Lapidum

County: Harford

BioNet Tier: 3
Size: 344 ac

Key Wildlife Habitats

- Cliffs and Rock Outcrops
- Montane-Piedmont Floodplain

Important Features

- Northern map turtle (*Graptemys geographica,* state-listed as Endangered)
- Sweet-scented Indian-plantain (*Senecio suaveolens*, state-listed as Endangered)
- Forest interior dwelling species (FIDS) habitat

Ecological Significance

South Lapidum includes an old, unused railroad bed (about ten feet high) which runs along the Susquehanna River, and the long, narrow wetland complex that borders the railroad bed. A portion of this wetland complex consists of the old Susquehanna Canal, which flows through a flat, floodplain woodland. To the south of this woodland is a very diverse emergent marsh with standing dead trees. This marsh, in turn, drains into an open water wetland complex, just before it meets with an inlet that forms the mouth of the old canal.

The wetlands, tributaries, old canal, and Susquehanna River shoreline of South Lapidum provide suitable habitat for the northern map turtle (*Graptemys geographica*). This mostly aquatic turtle is currently listed as an Endangered species in Maryland. It can be seen basking on logs or along the Susquehanna river banks. In Maryland, this endangered turtle is restricted to the Susquehanna River watershed.

Sweet-scented Indian-plantain (*Senecio suaveolens*, state-listed as Endangered) grows in the floodplain along the shoreline of the Susquehanna. Over a meter tall, its white flowers bloom in late summer. Maryland lies near the southern edge of its range, and it is rare throughout much of its range.

One other notable feature of South Lapidum is the steep, northeast-facing slopes which occur to the west of the wetlands. The eastern hemlocks which grow in the rocky crevices along the slopes indicate that the slopes have a cool microclimate and thus are likely to provide habitat for other rare or uncommon species that have adapted to these unusual conditions. Extensive northeast-facing slopes such as the ones found within this area are very unique in the Piedmont province of Maryland and occur only on the Harford County side of the Susquehanna River.

An additional value of South Lapidum is that it provides habitat for forest interior dwelling birds (FIDS). FIDS require large, contiguous blocks of forest to successfully reproduce, and populations of many FIDS are declining. Most FIDS are neotropical migrants, birds that travel long distances to breed in North America and winter in Central and South

America. Forest interior dwelling birds that have been observed on the site include red-eyed vireo, Acadian flycatcher, prothonotary warbler, Kentucky warbler, ovenbird, and northern parula.

Site Management Considerations

Principal threats to the site include sediment and stormwater runoff from adjacent uplands, which could degrade the quality of the wetlands and tributaries on which the rare species depends. Other threats to South Lapidum are activities which could alter the character of the steep slopes, or reduce the habitat value of the site for forest interior dwelling birds. Timber harvesting on the site should not occur on slopes of 15% or greater, to prevent a change in the microclimate or species composition of the steep slopes. Substantial removal of forest cover immediately above the steep slopes, which could also alter this microclimate, should be avoided.

The floodplain forest is vulnerable to encroachment by invasive species. The rich floodplain soils and regular disturbance by flooding promote the growth of multiflora rose and other invasive plants that crowd out the rare plants. Control of invasive plants is important to maintain the rare plant population.

This site is designated as a habitat protection area for state-listed species under the Chesapeake Bay Critical Area Regulations (COMAR 27.01.09.03). Certain wetlands and their adjacent 100 foot upland buffer at this site are regulated as Wetlands of Special State Concern by the Maryland Department of the Environment (COMAR 26.23.06.02).

The Maryland Department of Natural Resources' Natural Heritage Program and cooperative partners completed a State Wildlife Action Plan in 2015 as a requirement of State Wildlife Grant funding. The plan details key wildlife habitats, natural communities, and Species of Greatest Conservation Need (SGCN) statewide, and provides information on threats and conservation needs of Maryland's wildlife resources and supporting habitats. For more information, the full Plan can be accessed at http://dnr.maryland.gov/wildlife/Pages/plants_wildlife/SWAP_Submission.aspx.

Stafford Road Slopes

County: Harford

BioNet Tier: 3
Size: 197 ac

Key Wildlife Habitats

- Springs
- Montane-Piedmont Floodplain
- Mesic Mixed Hardwood Forest

Important Features

- Northern map turtle (*Graptemys geographica,* state-listed as Endangered)
- Potomac amphipod (*Stygobromus tenuis potomacus,* watchlist)
- Forest interior dwelling species (FIDS) habitat

Ecological Significance

Stafford Road Slopes consists of a two mile stretch of land along the Susquehanna River, which is comprised of extensive northeast-facing slopes. These slopes are generally very steep, and contain several seeps.

The Susquehanna River shoreline and associated wetlands and upland habitats of Stafford Road Slopes provide suitable habitat for the northern map turtle (*Graptemys geographica*). This mostly aquatic turtle is currently listed as an Endangered species in Maryland. It can be seen basking on logs or along the river banks. In Maryland, this endangered turtle is restricted to the Susquehanna River watershed.

A rich, deciduous forest can be found growing on the slopes. This forest is dominated by tulip poplar and various oaks, with an understory of red maple and a shrub layer of pawpaw (*Asimina triloba*). The herbaceous layer of the forest is very diverse, and contains may-apple (*Podophyllum peltatum*), pale jewelweed (*Impatiens pallida*), blue cohosh (*Caulophyllum thalictroides*), dutchman's breeches (*Dicentra cucullaria*), Christmas fern (*Polystichum acrostichoides*), bloodroot (*Sanguinaria canadensis*), wild ginger (*Asarum canadense*), jack-in-the-pulpit (*Arisaema triphyllum*), and many other species. The ground itself is very stony, and the stones are interspersed with rich, organic soil.

Stafford Road Slopes in comprised of a long stretch of steep, rocky slopes with a northeastern exposure. Extensive northeast-facing slopes such as the ones found within this area are very unique in the Piedmont province of Maryland and occur only on the Harford County side of the Susquehanna River. The microclimate of the slopes is very cool and moist. Groundwater seeps on these slopes harbor both the Potomac amphipod (*Stygobromus tenuis potomacus*), a groundwater invertebrate species on the state's watchlist, as well as a tremendously large population of a rare white form of red trillium (*Trillium erectum var. album*). The uniqueness of the slopes, combined with the presence of rare species on the site, make Stafford Road Slopes very worthy of protection.

Most of the Stafford Road Slopes area provides high-quality habitat for forest interior dwelling species (FIDS). FIDS require large, contiguous blocks of forest to successfully reproduce, and populations of many FIDS are declining. Most FIDS are neotropical migrants, birds that travel long distances to breed in North America and winter in Central and South America. Forest interior dwelling birds that may be found here include species such as red-eyed vireo, Acadian flycatcher, scarlet tanager, Kentucky warbler, ovenbird, and northern parula.

The slopes along Stafford Road are well-known for their exceptional springtime beauty. This beauty is due primarily to the abundance of wildflowers on the slopes, most notably the rare trilliums and dutchman's breeches. The white color of these flowers carpets the slopes of the area for their entire length.

Site Management Considerations

Most of Stafford Road Slopes falls within Susquehanna State Park. This site is designated as a habitat protection area for state-listed species under the Chesapeake Bay Critical Area Regulations (COMAR 27.01.09.03). Certain wetlands and their adjacent 100 foot upland buffer at this site are regulated as Wetlands of Special State Concern by the Maryland Department of the Environment (COMAR 26.23.06.02).

One activity which has the potential to destroy the integrity of the site is timber harvesting. This activity could alter the microclimate of the slopes, and subsequently change the species composition of the vegetation on these slopes. Timber harvesting could also cause direct damage to the rare species on the site. For reasons mentioned above, timber harvesting should not occur within the protection area, except to remove individual diseased trees, or trees which are in danger of falling where they may threaten human safety (i.e., along Stafford Road at the base of the slopes).

The Maryland Department of Natural Resources' Natural Heritage Program and cooperative partners completed a State Wildlife Action Plan in 2015 as a requirement of State Wildlife Grant funding. The plan details key wildlife habitats, natural communities, and Species of Greatest Conservation Need (SGCN) statewide, and provides information on threats and conservation needs of Maryland's wildlife resources and supporting habitats. For more information, the full Plan can be accessed at http://dnr.maryland.gov/wildlife/Pages/plants_wildlife/SWAP_Submission.aspx.

Swan Creek

County: Harford

BioNet Tier: 1

Size: 2954 ac

Key Wildlife Habitats

- Piedmont Stream
- Montane-Piedmont Floodplain
- Mesic Mixed Hardwood Forest
- Tidal Freshwater Marsh and Shrubland

Important Features

- Chesapeake logperch (*Percina bimaculata*, state-listed as Threatened)
- Forest interior dwelling species (FIDS) habitat

Ecological Significance

Swan Creek is a roughly 10-mile long stream that flows into the Chesapeake Bay at the northern end of the U.S. military base, Aberdeen Proving Ground. Much of the Swan Creek watershed is rural, consisting primarily of agricultural fields and forestland, with some development mostly at the southern edge at the town of Aberdeen. The headwaters of this tributary are important for maintaining water quality in downstream reaches. The lower portion of Swan Creek is comprised of good quality forested buffers and tidal marshes along the riverbanks. This section is low in gradient with gravel and sandy runs and sandy pools with large woody debris - providing important habitat for the critically imperiled Chesapeake logperch (*Percina bimaculata*, state-listed as Threatened). This small, globally-rare darter is found primarily in the Lower Susquehanna River and adjacent creeks in southeastern Pennsylvania and northeastern Maryland. In the past 80 years, its global range has diminished by more than 50 percent as the species has disappeared from the Potomac River basin and parts of the Susquehanna River basin in Pennsylvania. To survive, the logperch needs streams with silt-free gravel, as it feeds on aquatic invertebrates by flipping stones with its snout.

Other rare fishes found historically in the Swan Creek watershed include bridle shiner (*Notropis bifrenatus*), as well as the state and federally-listed Endangered Maryland darter (*Etheostoma sellare*). A tributary of Swan Creek was one of the last known habitats of the Maryland darter, the only vertebrate endemic to Maryland. This species was last sighted in Maryland in 1988, but recurring survey efforts hope to rediscover the fish in this good quality habitat.

Much of the creek is buffered by ecologically valuable terrestrial habitat, including mature mixed hardwood forests. Forest interior dwelling bird species (FIDS) such as red-eyed vireo, ovenbird, scarlet tanager, and Acadian flycatcher have been observed in these woods. FIDS require large, contiguous blocks of forest to successfully reproduce, and populations of many FIDS are declining. Most FIDS are neotropical migrants, birds that travel long distances to breed in North America and winter in Central and South America.

Site Management Considerations

Much of the Swan Creek area within the Critical Area boundary is found on properties owned and managed by Harford County as Swan Harbor Farm and Mullins Park.

Swan Creek is designated as a habitat protection area for state-listed species under the Chesapeake Bay Critical Area Regulations (COMAR 27.01.09.03).

The Maryland Department of Natural Resources' Natural Heritage Program and cooperative partners completed a State Wildlife Action Plan in 2015 as a requirement of State Wildlife Grant funding. The plan details key wildlife habitats, natural communities, and Species of Greatest Conservation Need (SGCN) statewide, and provides information on threats and conservation needs of Maryland's wildlife resources and supporting habitats. For more information, the full Plan can be accessed at http://dnr.maryland.gov/wildlife/Pages/plants_wildlife/SWAP_Submission.aspx.

Locally Significant Habitats

Belcamp Beach
County: Harford

BioNet Tier: 2
Size: 18 ac

Key Wildlife Habitats

- Coastal Beach
- Intertidal Mudflat and Sandflat
- Tidal Freshwater Marsh and Shrubland

Important Features

- Salt-marsh bulrush (*Schoenoplectus novae-angliae*, state rare)
- Spongy lophotocarpus (*Sagittaria spatulata,* state rare)
- Maryland bur-marigold (*Bidens bidentoides*, watchlist)
- Tickseed sunflower (*Bidens trichosperma,* watchlist)

Ecological Significance

Belcamp Beach has a sandy, gravelly, intertidal zone of beach with a firm bottom and predominantly fresh water. This habitat supports a group of rare wetland plants, including salt-marsh bulrush (*Schoenoplectus novae-angliae,* state rare), spongy lophotocarpus (*Sagittaria spatulata,* state rare), tickseed sunflower (*Bidens trichosperma,* watchlist), and Maryland bur-marigold (*Bidens bidentoides*, watchlist).

The Maryland bur-marigold is a globally rare regional endemic, found from Maryland northward to New York. It has narrow habitat requirements – tidal mud flats along river edges. In Maryland, this species is limited to tidal marshes of the upper Chesapeake Bay and its tributaries, which makes conservation of Harford County's populations essential to the survival of the species in Maryland. Common plants found here include common threesquare, switchgrass, rattlesnake-master, seaside goldenrod, and big cordgrass.

Site Management Considerations

The effects of climate change, such as sea-level rise, increased intensity of coastal flooding, and changes in sediment deposition, will be one of the greatest threats to this coastal wetland /aquatic system. The adjacent uplands and nearby shoreline habitats may affect the stability and composition of intertidal flats, as well as their ability to shift by migrating inland or along the shoreline as the sea level rises. Additional threats include the construction of structures in the intertidal zone, the clearing of vegetation in the upland buffer, excessive boat wakes, and the landing of boats on the shoreline during the growing season.

This site has been designated as a locally significant habitat under the Chesapeake Bay Critical Area Regulations (COMAR 27.01.09.03).

The Maryland Department of Natural Resources' Natural Heritage Program and cooperative partners completed a State Wildlife Action Plan in 2015 as a requirement of State Wildlife Grant funding. The plan details key wildlife habitats, natural communities, and Species of Greatest Conservation Need (SGCN) statewide, and provides information on threats and conservation needs of Maryland's wildlife resources and supporting habitats. For more information, the full Plan can be accessed at http://dnr.maryland.gov/wildlife/Pages/plants_wildlife/SWAP_Submission.aspx.

Grays Run
County: Harford

BioNet Tier: 3
Size: 106 ac

Key Wildlife Habitats

- Tidal Freshwater Marsh and Shrubland

Important Features

- Salt-marsh bulrush (*Schoenoplectus novae-angliae*, state rare)

Ecological Significance

The Grays Run area consists of a five acre fresh to brackish tidal marsh and a complex of tidal and nontidal wetlands and streams which drain into this marsh from the north. The tidal marsh is dominated by broad-leaved cattail (*Typha latifolia*), narrow-leaved cattail (*Typha angustifolia*), swamp rosemallow (*Hibiscus moscheutos*), wild rice (*Zizania aquatica*), and several bulrushes (*Scirpus sp.*) and other sedges. Grays Run flows in a northeast to southwest direction through the marsh. Pulaski Highway cuts across the marsh near its lower end.

A freshwater pond occurs to the southwest of the tidal marsh. Baltimore and Ohio railroad tracks run in an east to west direction along the northern border of both the pond and the marsh. Temporarily to seasonally-flooded forested nontidal wetlands with associated tributary streams occur to the north of these tracks. These wetlands are dominated by green ash (*Fraxinus pennsylvanica*), red maple (*Acer rubrum*) and box-elder (*Acer negundo*).

Grays Run contains a large population of salt-marsh bulrush (*Schoenoplectus novae-angliae*, formerly named *Scirpus cylindricus*), a state rare sedge. This species is found in only a few locations in the state and is of limited distribution in Harford County, currently known only from two sites in the Grays Run-Church Creek watershed. Salt-marsh bulrush has a broad range along the Atlantic Coastal Plain but has a restricted habitat - the transition zone between saline and fresh water in tidal river systems.

Site Management Considerations

Grays Run is located almost entirely within the Chesapeake Bay Critical Area and was designated a Habitat of Local Significance by Harford County in 1995. This designation prohibits development activities and other disturbances within the defined protection area unless it can be shown that such activities would not adversely affect the designated species or their habitat.

Activities which alter the hydrology of the tidal marsh or adjoining wetlands or increase pollutant runoff into the marsh should be avoided. Draining, filling, or development immediately adjacent to the wetlands could adversely impact the rare species habitat.

Although a portion of the marsh was drained in 1994 to construct a gas pipeline through the site, the project was carefully planned and monitored and the salt-marsh bulrush population was not damaged. Any activities related to the maintenance of the gas pipeline should be designed to avoid impacts to this rare plant species.

The maintenance of Grays Run in its present condition would provide the rare species population on the site with the best chance for survival over the long term. Monitoring of the rare species and the condition of the habitat should be done annually.

Certain wetlands and their adjacent 100 foot upland buffer at this site are regulated as Wetlands of Special State Concern by the Maryland Department of the Environment (COMAR 26.23.06.02).

The Maryland Department of Natural Resources' Natural Heritage Program and cooperative partners completed a State Wildlife Action Plan in 2015 as a requirement of State Wildlife Grant funding. The plan details key wildlife habitats, natural communities, and Species of Greatest Conservation Need (SGCN) statewide, and provides information on threats and conservation needs of Maryland's wildlife resources and supporting habitats. For more information, the full Plan can be accessed at http://dnr.maryland.gov/wildlife/Pages/plants_wildlife/SWAP_Submission.aspx.

Leight Park Site

County: Harford

BioNet Tier: 2
Size: 21 ac

Key Wildlife Habitats

- Coastal Beach
- Intertidal Mudflat and Sand Flat
- Mesic Mixed Hardwood Forest
- Tidal Freshwater Marsh and Shrubland

Important Features

- Spongy lophotocarpus (*Sagittaria spatulata,* state rare)
- Maryland bur-marigold (*Bidens bidentoides*, watchlist)
- Forest interior dwelling species (FIDS) habitat

Ecological Significance

Leight Park Site contains a sizable population of Maryland bur-marigold (*Bidens bidentoides*), a freshwater tidal marsh species that is globally rare and a regional endemic, found from Maryland northward to New York. This species occurs in a number of locations along the upper Chesapeake Bay in Cecil and Harford counties. Because the total range of this species is limited to fresh tidal marshes from New York south to the upper Chesapeake and its tributaries, conservation of Maryland's populations is important for the survival of the species.

The shoreline at Leight Park is a good example of a freshwater-slightly brackish tidal wetland. The intertidal zone is a combination of steeply sloped mucky shoreline and small coves with gradually sloping sandy shorelines. One sandy cove harbors a small colony of spongy lophotocarpus (*Sagittaria spatulata,* state rare), an intertidal species.

Like other estuaries, this site supports a variety and abundance of wildlife, especially birds, fish, and invertebrates. The wide expanse of water provides good fishing for belted kingfisher, great blue heron, and osprey. Several small streams and seepage areas provide habitat for salamanders and frogs. The forest also is part of a larger block of forest that provides habitat for forest interior dwelling species (FIDS), such as Acadian flycatcher and scarlet tanager. FIDS require large, contiguous blocks of forest to successfully reproduce, and populations of many FIDS are declining. Most FIDS are neotropical migrants, birds that travel long distances to breed in North America and winter in Central and South America.

Site Management Considerations

The effects of climate change, such as sea-level rise, increased intensity of coastal flooding, and changes in sediment deposition, will be one of the greatest threats to this coastal wetland /aquatic system. The adjacent uplands and nearby shoreline habitats may

affect the stability and composition of intertidal flats, as well as their ability to shift by migrating inland or along the shoreline as the sea level rises. Additional threats include the construction of structures in the intertidal zone, the clearing of vegetation in the upland buffer, excessive boat wakes, and the landing of boats on the shoreline during the growing season.

Leight Park is owned and managed by Harford County and is part of the Otter Point Creek component of the Chesapeake Bay National Estuarine Research Reserve. This site has been designated as a locally significant habitat under the Chesapeake Bay Critical Area Regulations (COMAR 27.01.09.03).

The Maryland Department of Natural Resources' Natural Heritage Program and cooperative partners completed a State Wildlife Action Plan in 2015 as a requirement of State Wildlife Grant funding. The plan details key wildlife habitats, natural communities, and Species of Greatest Conservation Need (SGCN) statewide, and provides information on threats and conservation needs of Maryland's wildlife resources and supporting habitats. For more information, the full Plan can be accessed at http://dnr.maryland.gov/wildlife/Pages/plants_wildlife/SWAP_Submission.aspx.

Perryman Woods
County: Harford

BioNet Tier: 4
Size: 123 ac

Key Wildlife Habitats

- Vernal Pools
- Coastal Plain Flatwood and Depression Swamp

Important Features

- Forest interior dwelling species (FIDS) habitat

Ecological Significance

The deciduous woodland and associated vernal pools of the Perryman Woods area represent a natural community type called "flatwoods" or a depressional forested wetland. This community type is found only in the Coastal Plain portion of the County and is thus of limited occurrence. Flatwood communities have been cleared and fragmented by development and agriculture and are considered a rare habitat in Maryland. Located south of the Amtrak line along the Bush River, the Perryman Woods site represents one of the best remaining examples of this community type in the County. The large trees on the site make this community particularly unique.

The vernal pools fill with water in winter and spring and dry in summer so they do not harbor fish. They provide breeding and feeding habitat for a large number and variety of amphibians, a few reptile species, and a large number of aquatic invertebrates that all thrive in the absence of predatory fish. Many of these species are vernal pool specialists and require these natural pools to complete their life cycles.

An additional value of Perryman Woods is that it provides high quality habitat for forest interior dwelling species (FIDS). Interior dwelling species require large tracts of forest for optimal reproduction. Most forest interior breeding birds are neotropical migrants, or birds that travel long distances to breed in North America and winter in Central and South America. Interior breeding birds that have been observed on the site include pileated woodpecker, hairy woodpecker, whip-poor-will, Acadian flycatcher, yellow-throated vireo, red-eyed vireo, northern parula, ovenbird, American redstart, and scarlet tanager.

The forest is dominated by white oak, tulip poplar, American beech, and sweetgum with diameters generally ranging from 12 to 18 inches. Several larger trees with diameters of 24 inches also occur on the site. Subdominant tree species include northern red oak, black oak, hickory (*Carya* sp.), and red maple. Arrowwood (*Viburnum* sp.), blueberries (*Vaccinium* sp.), and greenbrier (*Smilax* sp.) occur in the understory, as do saplings of overstory trees. Some of the vernal pools support wetland vegetation, including willow oak, smooth arrowwood (*Viburnum recognitum*), spicebush (*Lindera benzoin*), buttonbush, and willow (*Salix* sp.), while others are virtually unvegetated. A red maple / green ash tidal marsh with a fringe of cattails (*Typha* sp.) and arrow arum (*Peltandra virginica*) can be found in the

southern portion of this site. Perryman Woods is bisected by a powerline corridor which runs in an east-west direction through the middle of the site.

Site Management Considerations

Potential threats to this site are related to negative impacts to the water quality of the vernal pools. Runoff from the adjoining agricultural field has the potential to adversely impact the vernal pools on the site, and also to impact the water of the tributary streams flowing through the site. Precautionary measures should be taken during any future construction in the vicinity of Perryman Woods to prevent any sedimentation of these streams and pools.

Logging should be avoided if possible to maintain the water quality and hydrology of the vernal pools. A minimum forested buffer of 300ft from the vernal pool edge should remain undisturbed to protect habitat for the amphibians that breed in the pools and spend much of their life cycle in the adjacent forest. If logging is proposed, beyond the 300ft buffer only selective logging should occur consistent with FIDS protection guidelines.

This site has been designated as a locally significant habitat under the Chesapeake Bay Critical Area Regulations (COMAR 27.01.09.03). Certain wetlands and their adjacent 100 foot upland buffer at this site are regulated as Wetlands of Special State Concern by the Maryland Department of the Environment (COMAR 26.23.06.02).

The Maryland Department of Natural Resources' Natural Heritage Program and cooperative partners completed a State Wildlife Action Plan in 2015 as a requirement of State Wildlife Grant funding. The plan details key wildlife habitats, natural communities, and Species of Greatest Conservation Need (SGCN) statewide, and provides information on threats and conservation needs of Maryland's wildlife resources and supporting habitats. For more information, the full Plan can be accessed at http://dnr.maryland.gov/wildlife/Pages/plants_wildlife/SWAP_Submission.aspx.

Swan Creek Point

County: Harford

BioNet Tier: 2
Size: 41 ac

Key Wildlife Habitats

- Coastal Beach
- Intertidal Mudflat and Sandflat
- Tidal Freshwater Marsh and Shrubland

Important Features

- Maryland bur-marigold (*Bidens bidentoides*, watchlist)

Ecological Significance

The primary feature of Swan Creek Point is the intertidal habitat that supports a population of Maryland bur-marigold (*Bidens bidentoides*, watchlist) which is globally rare and a regional endemic, found only from Maryland northward to New York. The total Maryland range of this species is limited to tidal waters of the upper Chesapeake Bay and its tributaries. Therefore, conservation of Harford County's populations is important to the survival of the species in Maryland and range-wide. This species is often found in association with a few other rare intertidal plants, and this area is likely to offer potential habitat for these associated rare species.

Site Management Considerations

The effects of climate change, such as sea-level rise, increased intensity of coastal flooding, and changes in sediment deposition, will be one of the greatest threats to this coastal wetland /aquatic system. The adjacent uplands and nearby shoreline habitats may affect the stability and composition of intertidal flats, as well as their ability to shift by migrating inland or along the shoreline as the sea level rises. Additional threats include the construction of structures in the intertidal zone, the clearing of vegetation in the upland buffer, excessive boat wakes, and the landing of boats on the shoreline during the growing season.

The Swan Creek Point area is located within the Eleanor and Millard Tydings Park, owned and managed by Harford County. This site has been designated as a locally significant habitat under the Chesapeake Bay Critical Area Regulations (COMAR 27.01.09.03).

The Maryland Department of Natural Resources' Natural Heritage Program and cooperative partners completed a State Wildlife Action Plan in 2015 as a requirement of State Wildlife Grant funding. The plan details key wildlife habitats, natural communities, and Species of Greatest Conservation Need (SGCN) statewide, and provides information on threats and conservation needs of Maryland's wildlife resources and supporting habitats. For more information, the full Plan can be accessed at http://dnr.maryland.gov/wildlife/Pages/plants_wildlife/SWAP_Submission.aspx.

Willoughby Woods

County: Harford

BioNet Tier: 4
Size: 249 ac

Key Wildlife Habitats

- Vernal Pools
- Coastal Plain Flatwood and Depression Swamp

Important Features

- Forest interior dwelling species (FIDS) habitat

Ecological Significance

Notable features of Willoughby Woods are the many temporarily to seasonally flooded nontidal wetlands, known as vernal pools, which occur throughout the site. The deciduous woodland and associated vernal pools of the Willoughby Woods area represent a natural community type called "flatwood" or a depressional forested wetland. This community type is found only in the Coastal Plain portion of the County and is thus of limited occurrence. Flatwood communities have been substantially reduced in Maryland and are considered a rare habitat. In Harford County, most flatwood communities have been destroyed by agricultural and development activities. The Willoughby Woods site represents one of the best remaining examples of this community type in Harford County and is also one of the larger intact woodlands in the Coastal Plain portion of the County.

The vernal pools within Willoughby Woods provide breeding and feeding habitat for a large number and a variety of amphibians, a few reptile species, and a large number of aquatic invertebrates. Many of these species are vernal pool specialists and require natural pools to complete their life cycles. The high concentration of vernal pools at Willoughby Woods makes the site particularly valuable to species that depend on such pools.

Willoughby Woods consists primarily of a flat, well-stratified deciduous woodland, dominated by white oak, tulip poplar, and sweetgum, with an understory of red maple and sweetgum, and a shrub layer of blueberries (*Vaccinium* spp.), and saplings of overstory trees. A large alluvial red maple/tulip poplar floodplain occurs in the northwestern portion of the site, which is bisected by Willoughby Beach Road. Most of the vernal pools support wetland vegetation, including willow oak, smooth arrowwood (*Viburnum recognitum*), and spicebush (*Lindera benzoin*), while some of the smaller pools are virtually unvegetated.

Several open nontidal wetlands and one tidal wetland add to the overall diversity of the site. Three nontidal wetlands, along the railroad tracks in the southwestern portion of the site, were once part of the large tidal marsh complex to the south, in Aberdeen Proving Ground. These wetlands are now somewhat impounded by the railroad tracks and, as a result, are semi-permanently to permanently flooded. These wetlands presently support a high diversity of plant species, including sedges (*Carex* spp.), rushes (*Juncus* spp.), bulrushes (*Scirpus* spp.), burreed (*Sparganium* sp.), beggar-ticks (*Bidens* spp.), buttonbush (*Cephalanthus occidentalis*), and bladderworts (*Utricularia* sp.), and also contain some

standing dead trees. One wetland, along the north edge of Willoughby Beach Road in the eastern part of the site, contains roses (*Rosa* sp.), narrow-leaved cattails (*Typha angustifolia*), buttonbush, and bladderworts. This wetland is unique in that *Sphagnum* spp. is present over large portions of the wetland, creating a bog-like habitat.

An additional value of Willoughby Woods is that it provides high quality habitat for forest interior dwelling species (FIDS). Interior dwelling species require large tracts of forest for optimal reproduction. Most forest interior breeding birds are neotropical migrants, or birds that travel long distances to breed in North America and winter in Central and South America. Interior breeding birds that have been observed on the site include ovenbird, red-eyed vireo, scarlet tanager, Acadian flycatcher, hairy woodpecker, and Kentucky warbler.

Site Management Considerations

Potential threats to this site are related to negative impacts to the water quality of the vernal pools. Runoff from the existing housing developments, adjoining agricultural field, and Willoughby Beach Road have the potential to adversely impact the vernal pools on the site, and also to impact the water of the tributary streams flowing through the site. Precautionary measures should be taken during any future construction in the vicinity of Willoughby Woods to prevent any sedimentation of these streams and vernal pools, and to maintain the hydrology of the streams and vernal pools.

Most of the Willoughby Woods site is conserved by the Harford Land Trust. If forest on an adjacent property is proposed to be logged, a 500ft forested buffer should be retained around vernal pools ideally with no disturbance within 300ft of a vernal pool and selective logging consistent with FIDS protection guidelines beyond 300ft from the pool. This forest buffer serves to protect the pools and to provide habitat for the amphibians that breed in the pools and use the adjacent forest habitat for the remainder of their life cycle.

Small stands of the invasive common reed (*Phragmites australis*) in two of the wetlands along the railroad tracks threaten the integrity of these wetlands and should be eradicated. Sweetgum (*Liquidambar styraciflua*) is beginning to move into an otherwise open wetland along the north edge of Willoughby Beach Road in the eastern part of the site and should be controlled to keep this unique wetland open.

This site has been designated as a locally significant habitat under the Chesapeake Bay Critical Area Regulations (COMAR 27.01.09.03). Certain wetlands and their adjacent 100 foot upland buffer at this site are regulated as Wetlands of Special State Concern by the Maryland Department of the Environment (COMAR 26.23.06.02).

The Maryland Department of Natural Resources' Natural Heritage Program and cooperative partners completed a State Wildlife Action Plan in 2015 as a requirement of State Wildlife Grant funding. The plan details key wildlife habitats, natural communities, and Species of Greatest Conservation Need (SGCN) statewide, and provides information on threats and conservation needs of Maryland's wildlife resources and supporting

habitats. For more information, the full Plan can be accessed at http://dnr.maryland.gov/wildlife/Pages/plants_wildlife/SWAP_Submission.aspx.

Colonial Waterbird Colonies

The Maryland Department of Natural Resources monitors the location and population sizes of nesting colonial waterbirds throughout Maryland. Colonial waterbirds include such species as egrets, herons, ibis, gulls, terns, and pelicans. For some species, these monitoring activities occur annually. For other species that are more common, such as great blue herons, monitoring may only occur every five years or longer.

Two locations for great blue heron rookeries were located in Harford County in 2013: Park Island off of Havre de Grace and Robert Island in the Susquehanna River. The Park Island colony was rather small, with only four nests detected, while the Robert Island colony was larger with 43 nests.

General Guidelines for Conservation of Great Blue Heron Colonies

With their seven foot wing span and distinctive s-shaped neck, great blue herons are a frequent, magnificent sight around the Chesapeake Bay. They nest in colonies, sometimes called rookeries, in forested areas that are relatively free of predators and disturbance. Colony sites are often adjacent to water, in forested non-tidal wetlands and/or floodplains. Wading in shallow water, great blue herons hunt for fish, frogs, crayfish, and snakes. Their long pointed bill also helps them catch insects, mice, and other small animals. As Maryland continues to grow and develop, secure nest sites for great blue herons may become scarcer. Whenever possible, great blue heron colony sites should be conserved as part of responsible land stewardship. Conservation of great blue heron colonies that are located in the Chesapeake Bay Critical Area is required by state law (§ 8-1801/1806). Significant mortality of chicks or eggs resulting from disturbance of the colony during the breeding season is a violation of the U.S. Migratory Bird Treaty Act. Disturbance includes actions such as cutting nest trees, cutting nearby trees, or nearby construction that causes abandonment of chicks by the adults.

The following guidelines are recommended as measures to protect great blue heron nesting colonies.

1. Establish a protection area of 660-foot radius from the colony's outer boundary. Within this area establish two zones of protection: Zone 1 extends from the outer boundary of the colony to a radius of 330 feet, Zone 2 extends from 330 feet to 660 feet in radius.

2. During the breeding season, 15 February through 31 July, all human entry into Zone 1 should be restricted to only that essential for protection of the Great Blue Heron colony. Human disturbance of colony sites that results in significant mortality of eggs and/or chicks is considered a prohibited taking under various state and federal regulations.

3. No land use changes, including development or timber harvesting, should occur in Zone 1.

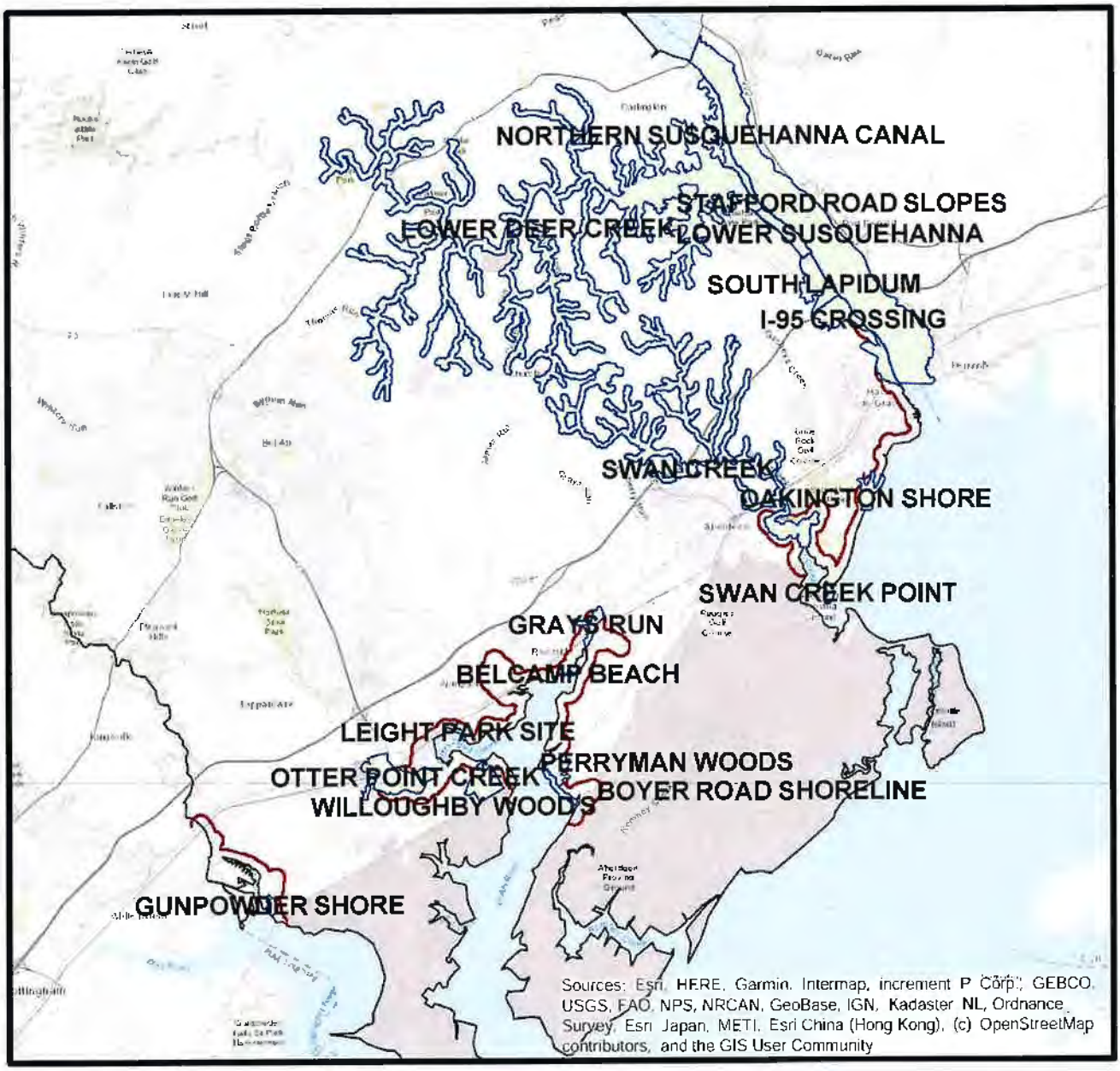
4. Construction activities, including clearing, grading, building, etc., should not occur within Zones 1 and 2.

5. Selective timber harvesting may occur in Zone 2, but clearcutting should be avoided.

The Department of Natural Resources' Wildlife and Heritage Service provides assistance to those interested in protecting this resource. The above guidelines are usually suitable for protection of most great blue heron colonies. Specific protection measures depend upon site conditions, planned activities, colony site type and history, and other factors. For more specific technical advice regarding planned projects and great blue heron protection, contact the Wildlife and Heritage Service (410-260-8540).

Habitat Protection Areas in the Critical Area
Harford County

Overview of Areas



Critical Area Habitat Protection Area

Critical Area (revised)

4

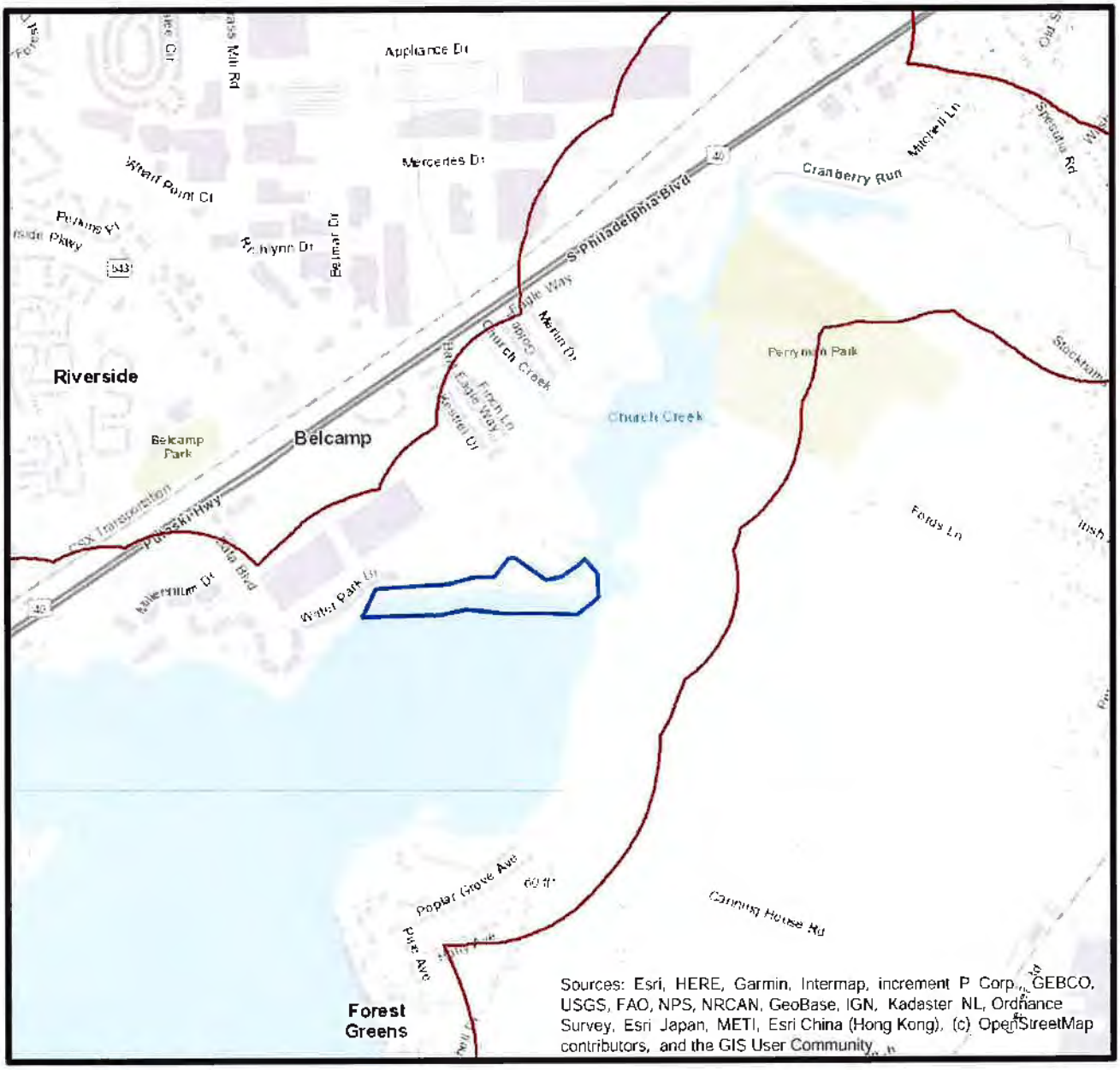
MARYLAND DEPARTMENT OF NATURAL RESOURCES

0 1.5 3 6 Miles

Wildlife & Heritage Service
7/18/2022

Habitat Protection Areas in the Critical Area
Harford County

Belcamp Beach -- Locally Significant Habitat



Critical Area Habitat Protection Area

Critical Area (revised)

4

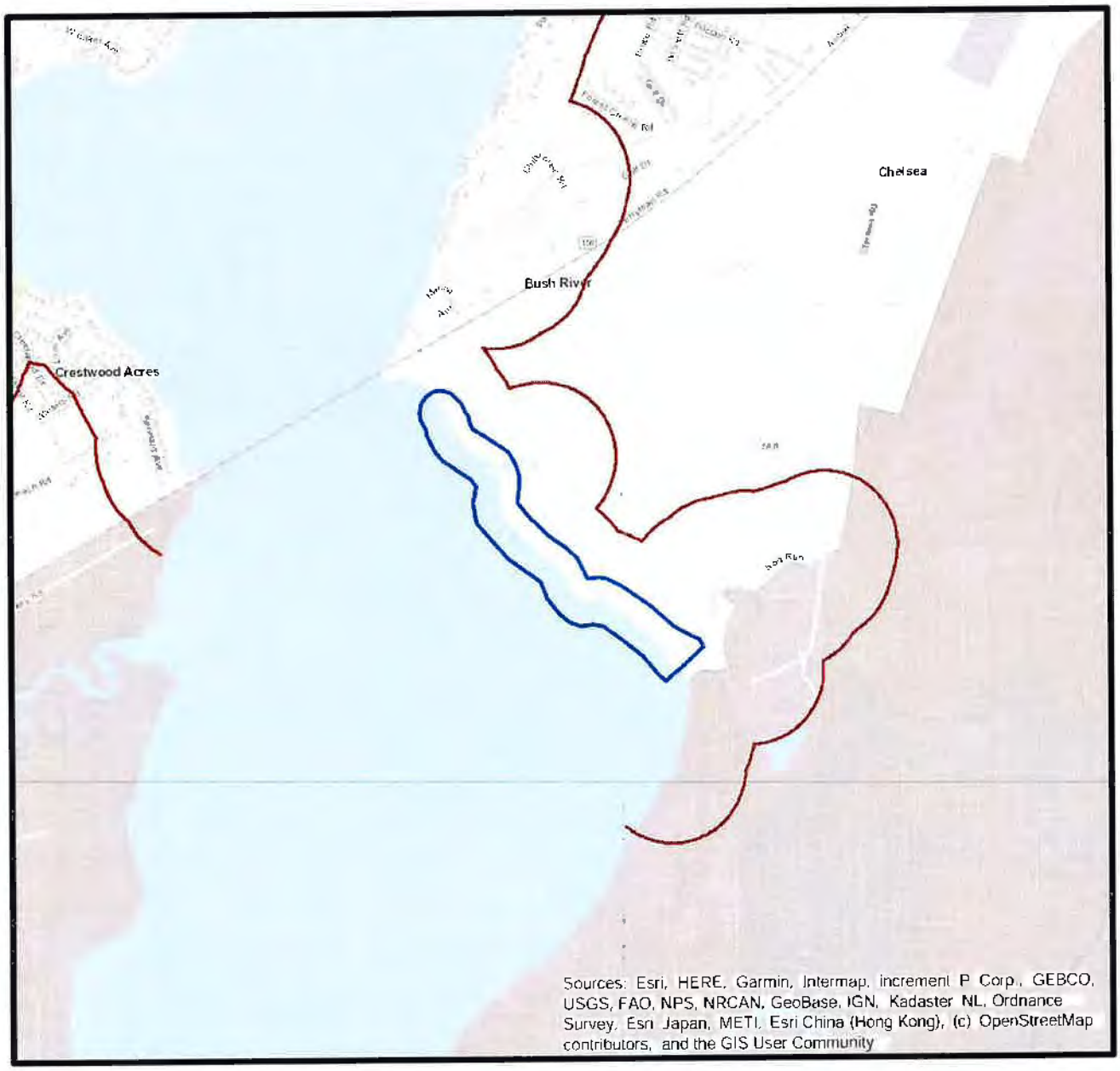
0 0.125 0.25 0.5 Miles

MARYLAND DEPARTMENT OF NATURAL RESOURCES

Wildlife & Heritage Service
7/18/2022

Habitat Protection Areas in the Critical Area
Harford County

Boyer Road Shoreline -- Listed Species Site



Critical Area Habitat Protection Area

Critical Area (revised)

4

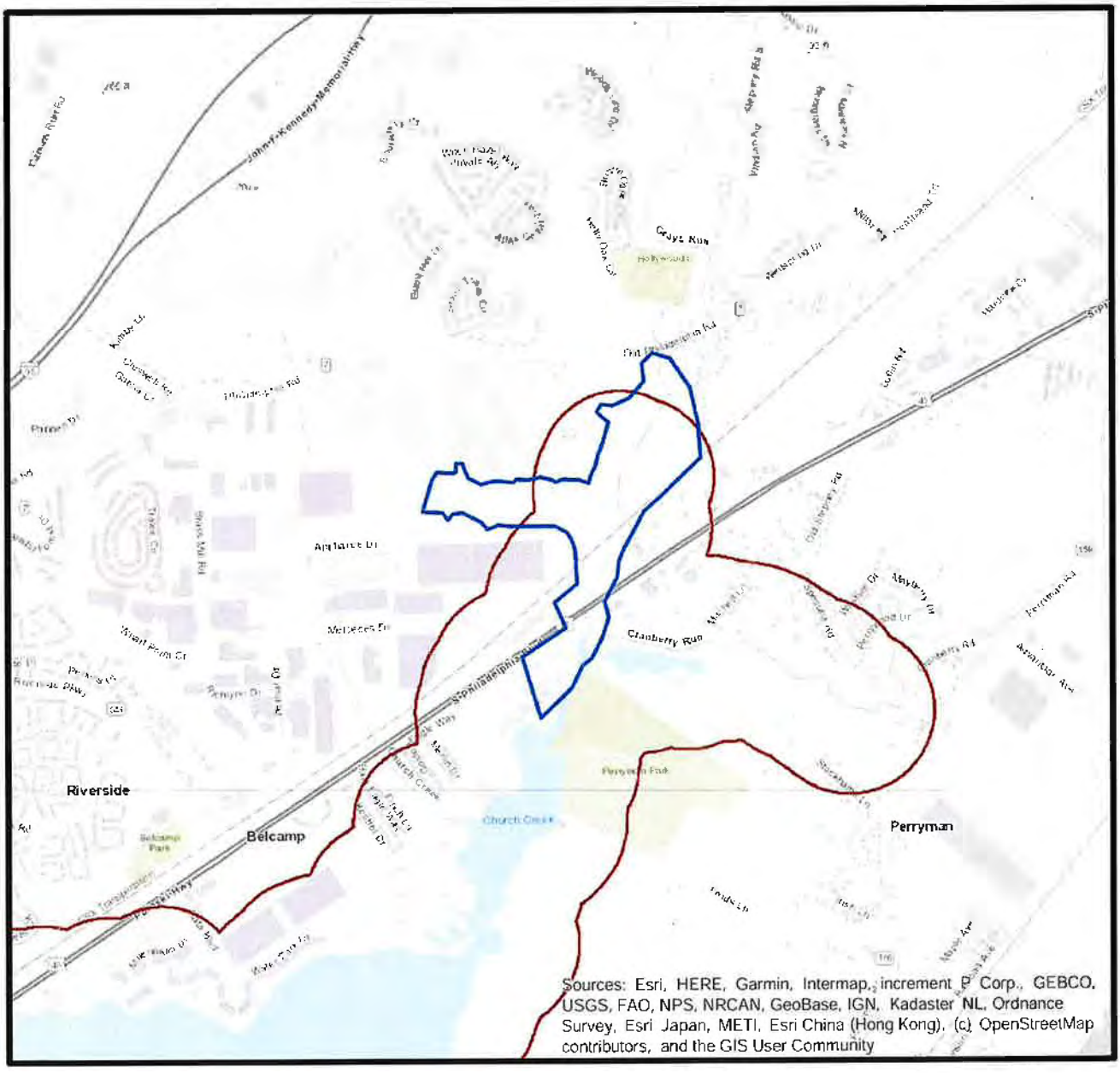
MARYLAND DEPARTMENT OF NATURAL RESOURCES

0 0.175 0.35 0.7 Miles

Wildlife & Heritage Service
7/18/2022

Habitat Protection Areas in the Critical Area
Harford County

Grays Run -- Locally Significant Habitat



Critical Area Habitat Protection Area

Critical Area (revised)

4

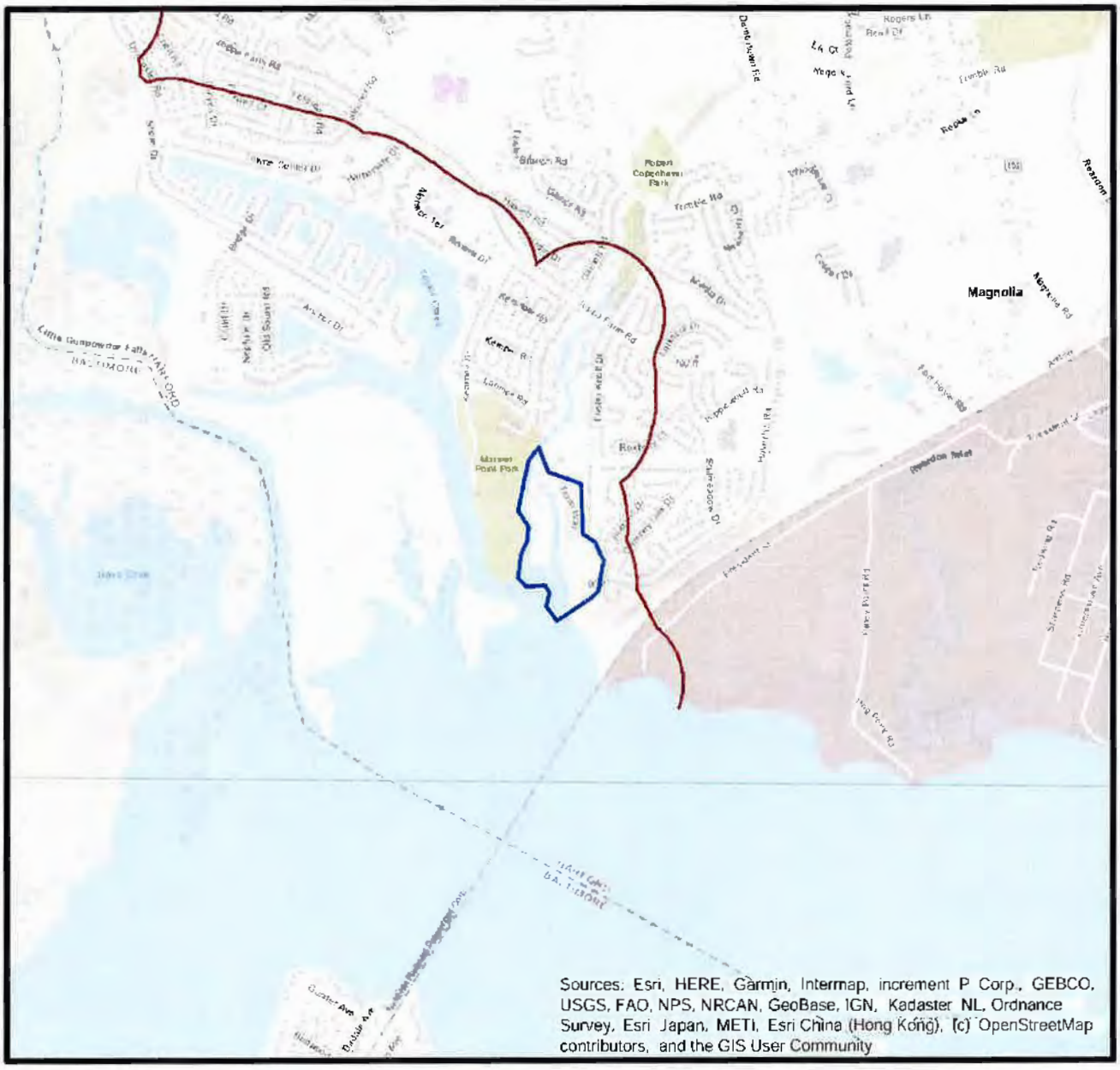
0 0.175 0.35 0.7 Miles

MARYLAND DEPARTMENT OF NATURAL RESOURCES

Wildlife & Heritage Service
7/18/2022

Habitat Protection Areas in the Critical Area
Harford County

Gunpowder Shore -- Listed Species Site



Critical Area Habitat Protection Area

Critical Area (revised)

4

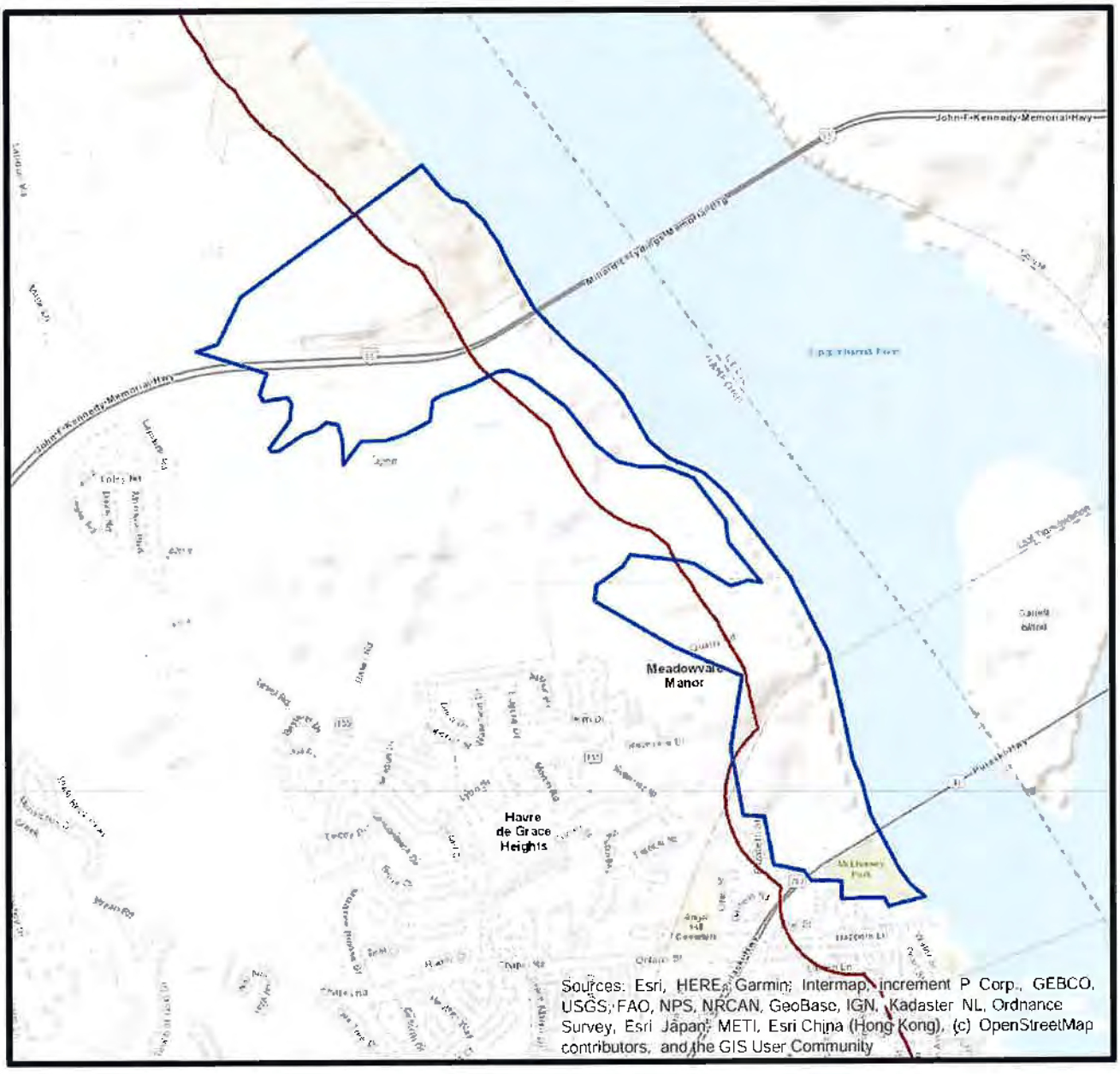
0 0.175 0.35 0.7 Miles

MARYLAND DEPARTMENT OF NATURAL RESOURCES

Wildlife & Heritage Service
7/18/2022

Habitat Protection Areas in the Critical Area
Harford County

I-95 Crossing -- Listed Species Site



Critical Area Habitat Protection Area

Critical Area (revised)

4

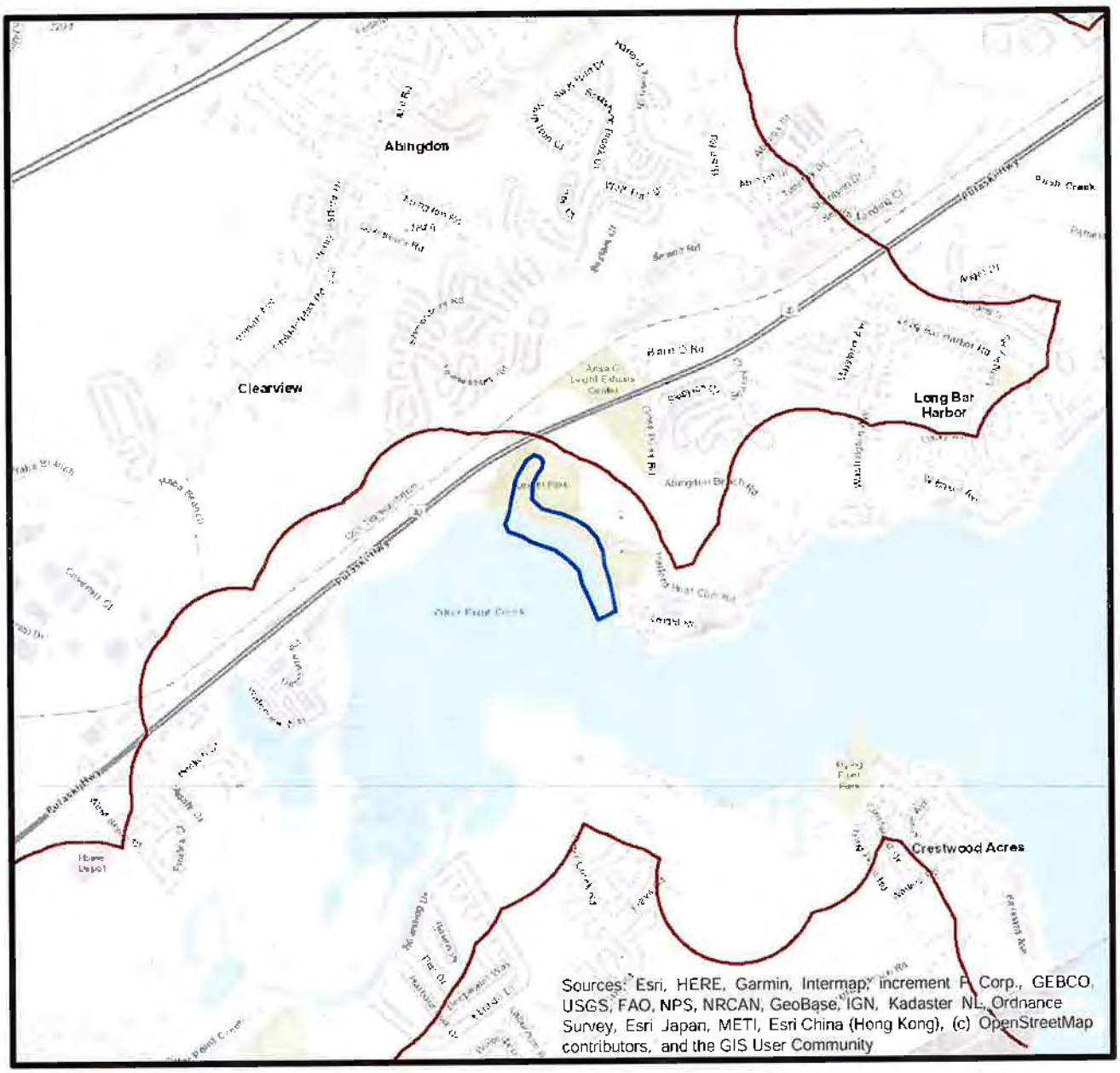
0 0.175 0.35 0.7 Miles

MARYLAND DEPARTMENT OF NATURAL RESOURCES

Wildlife & Heritage Service
7/18/2022

Habitat Protection Areas in the Critical Area
Harford County

Leight Park Site -- Locally Significant Habitat



Critical Area Habitat Protection Area

Critical Area (revised)

4

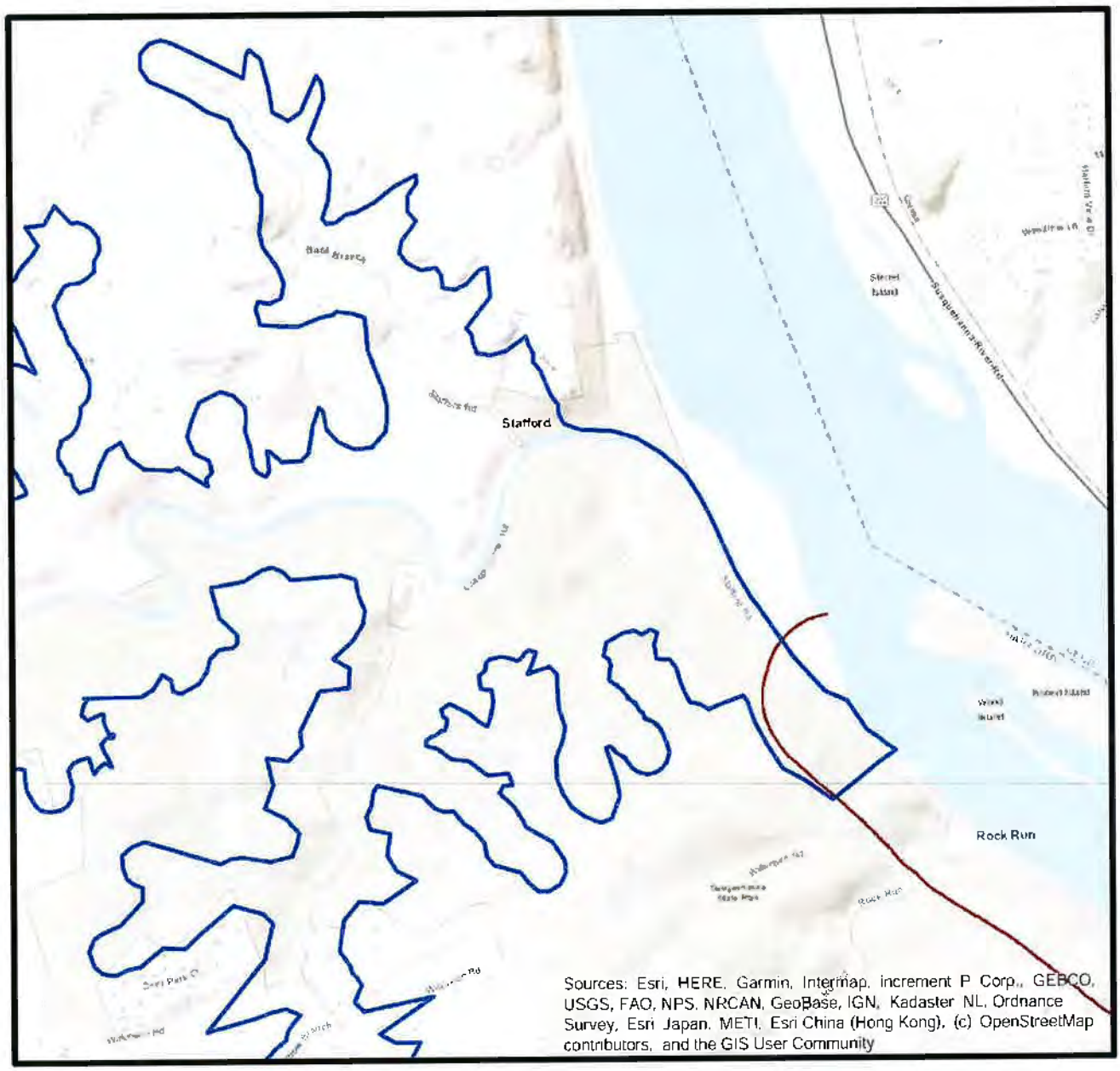
0 0.175 0.35 0.7 Miles

MARYLAND DEPARTMENT OF NATURAL RESOURCES

Wildlife & Heritage Service
7/18/2022

Habitat Protection Areas in the Critical Area
Harford County

Lower Deer Creek -- Listed Species Site



Critical Area Habitat Protection Area

Critical Area (revised)

4

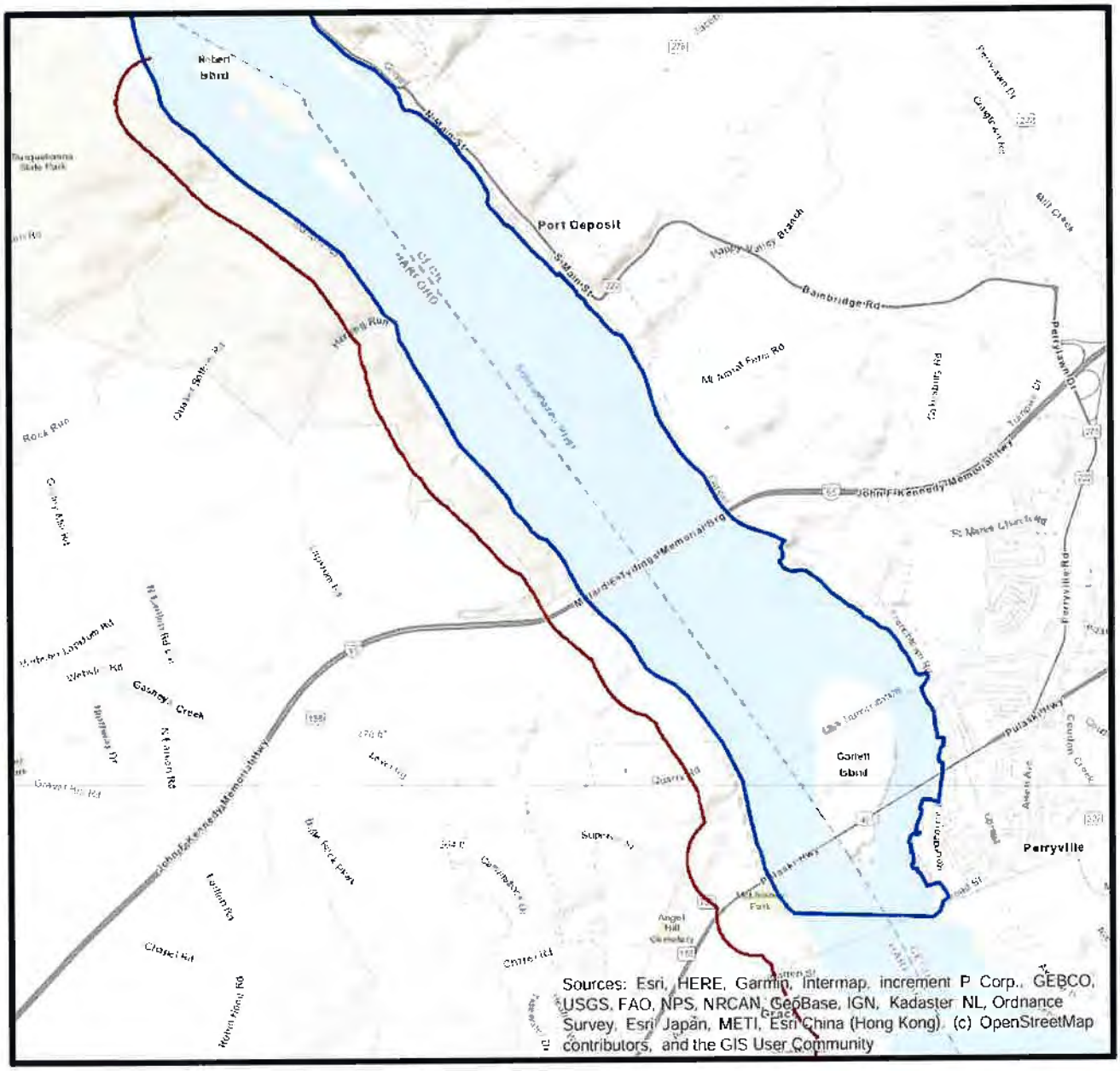
0 0.175 0.35 0.7 Miles

MARYLAND DEPARTMENT OF NATURAL RESOURCES

Wildlife & Heritage Service
7/18/2022

Habitat Protection Areas in the Critical Area
Harford County

Lower Susquehanna -- Listed Species Site



Critical Area Habitat Protection Area

Critical Area (revised)

4

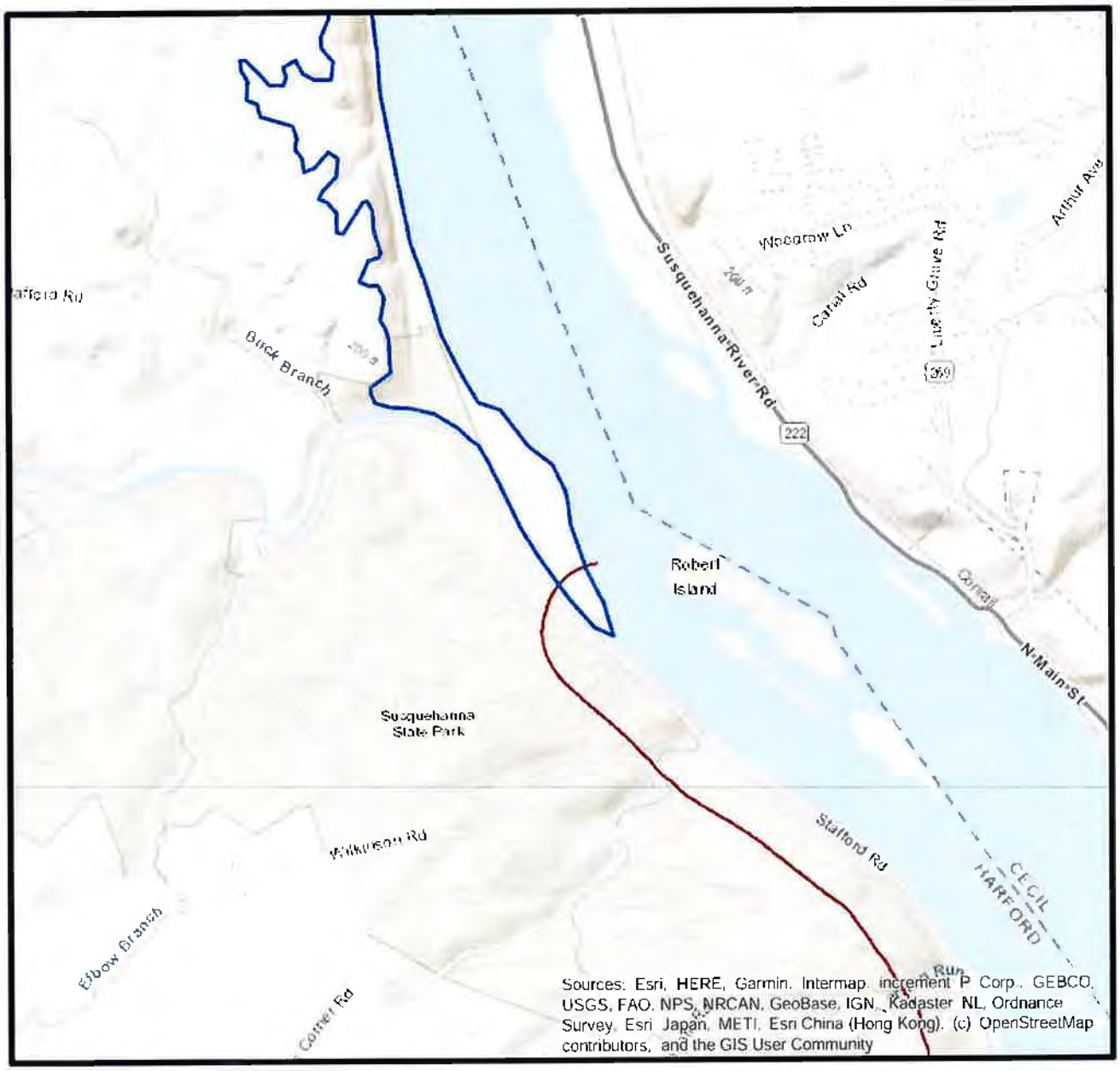
0 0.35 0.7 1.4 Miles

MARYLAND DEPARTMENT OF NATURAL RESOURCES

Wildlife & Heritage Service
7/18/2022

Habitat Protection Areas in the Critical Area
Harford County

Northern Susquehanna Canal -- Listed Species Site



Critical Area Habitat Protection Area

Critical Area (revised)

4

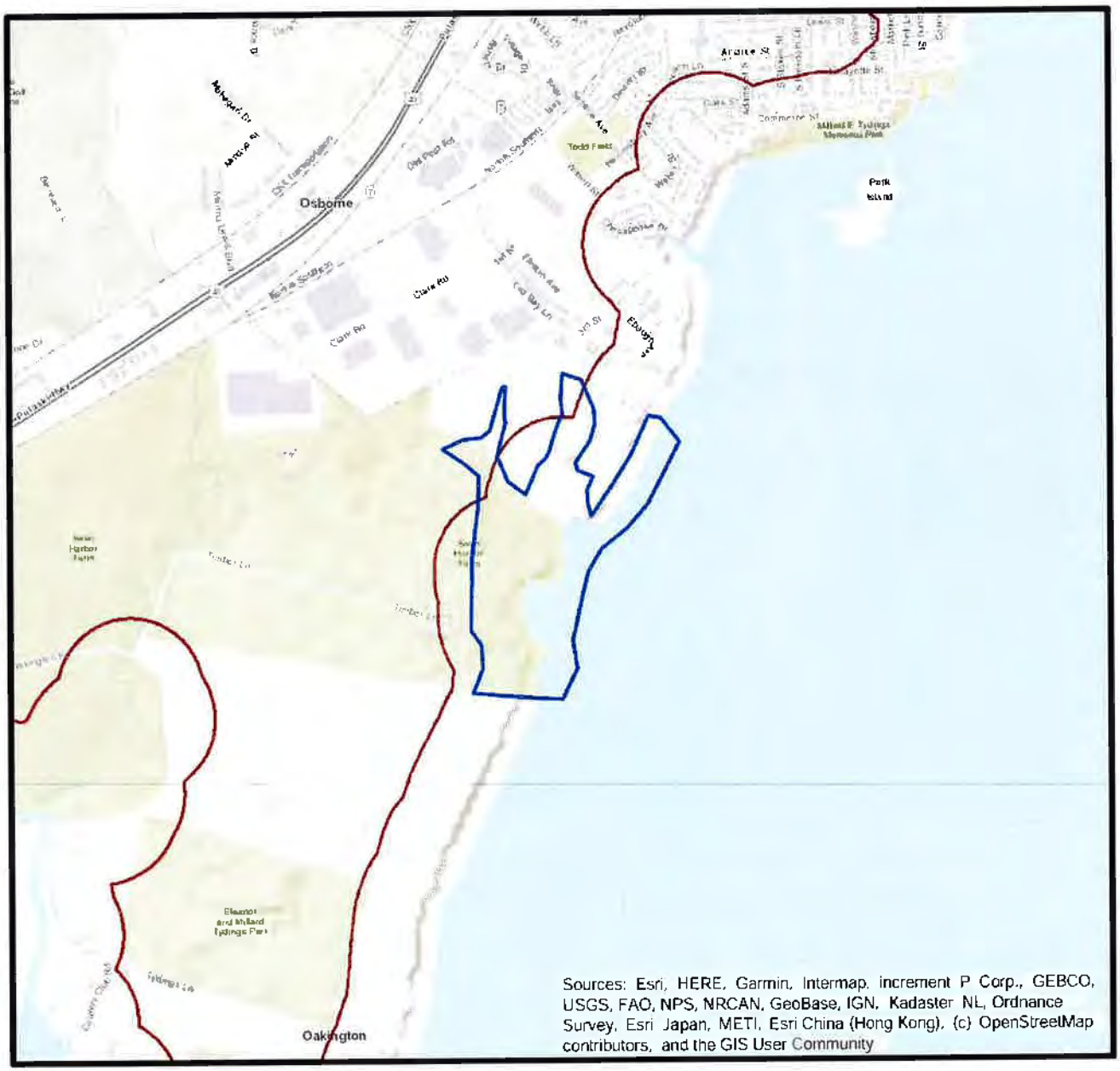
0 0.225 0.45 0.9 Miles

MARYLAND DEPARTMENT OF NATURAL RESOURCES

Wildlife & Heritage Service
7/18/2022

Habitat Protection Areas in the Critical Area
Harford County

Oakington Shore -- Listed Species Site



Critical Area Habitat Protection Area

Critical Area (revised)

4

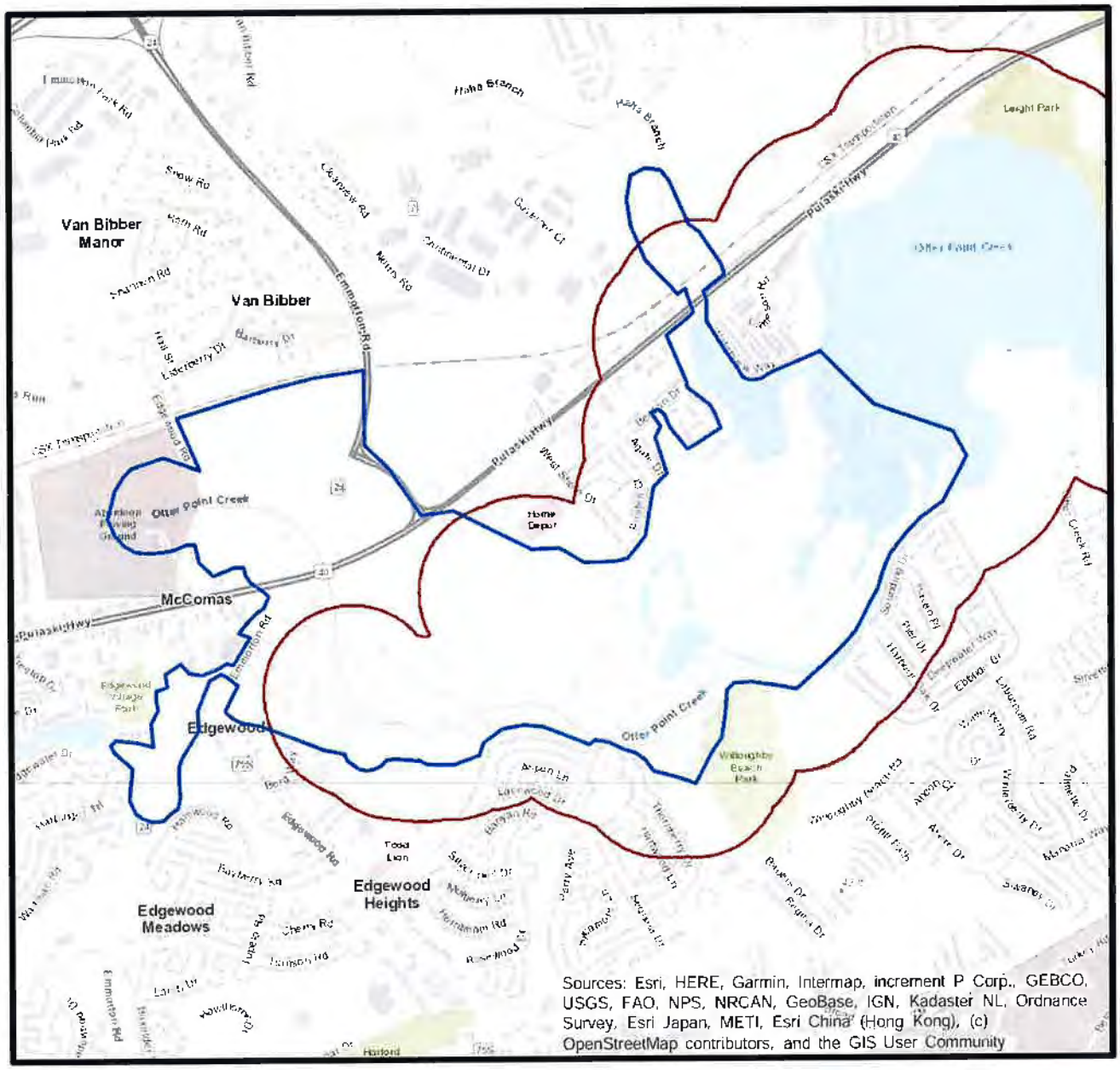
0 0.175 0.35 0.7 Miles

MARYLAND DEPARTMENT OF NATURAL RESOURCES

Wildlife & Heritage Service
7/18/2022

Habitat Protection Areas in the Critical Area
Harford County

Otter Point Creek -- Listed Species Site



Critical Area Habitat Protection Area

Critical Area (revised)

4

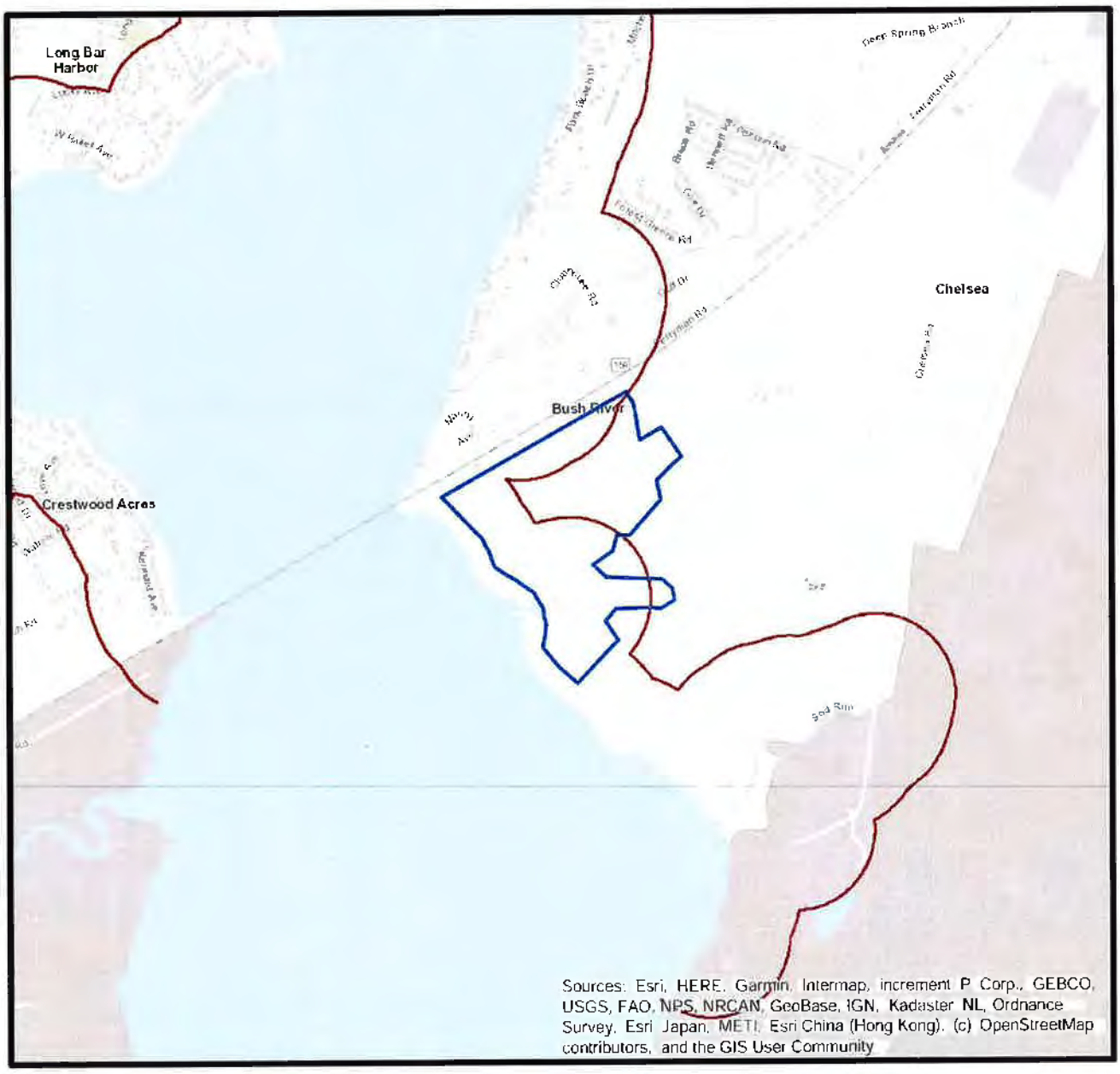
0 0.15 0.3 0.6 Miles

MARYLAND DEPARTMENT OF NATURAL RESOURCES

Wildlife & Heritage Service
7/18/2022

Habitat Protection Areas in the Critical Area
Harford County

Perryman Woods -- Locally Significant Habitat



Critical Area Habitat Protection Area

Critical Area (revised)

4

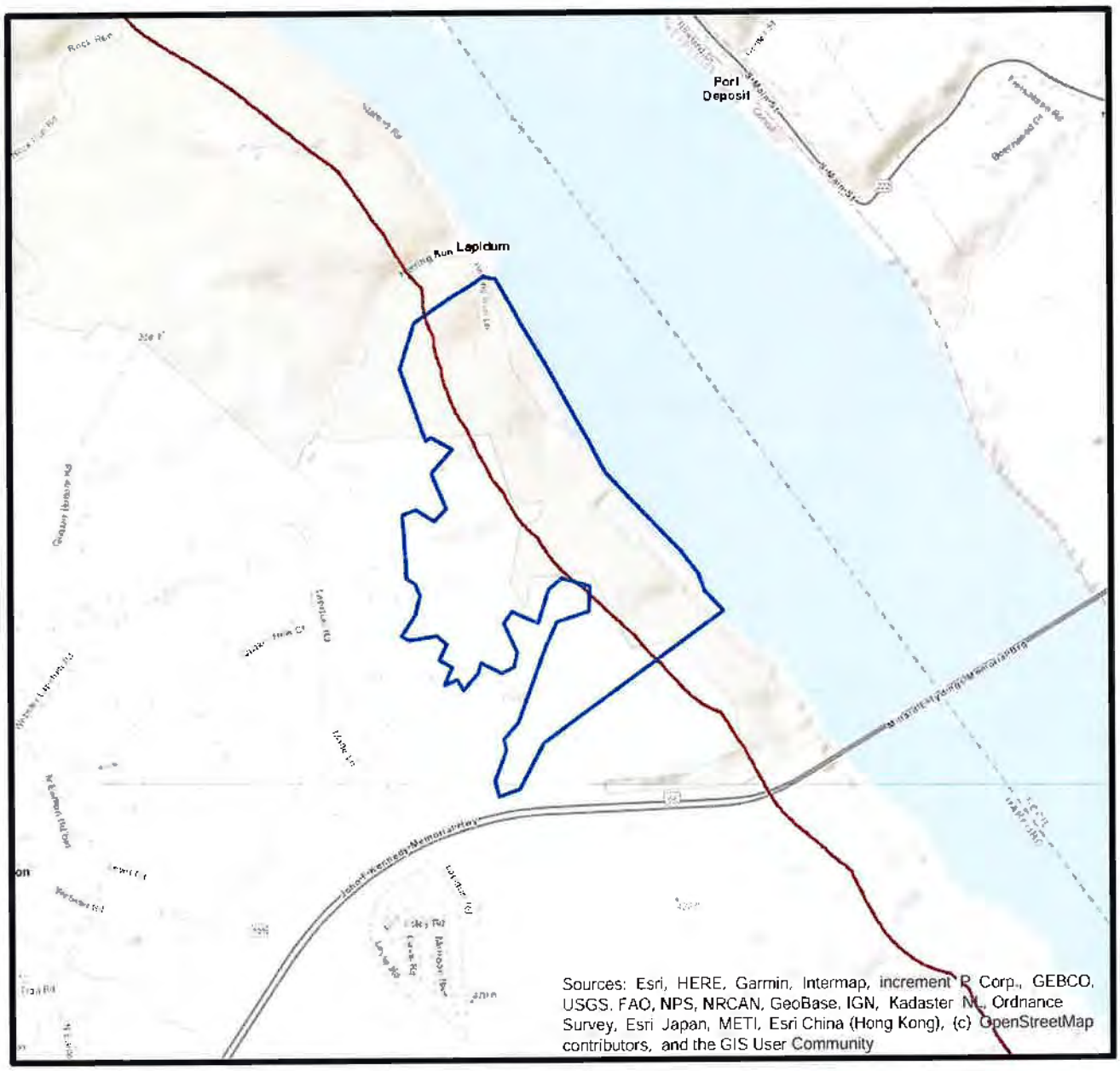
0 0.175 0.35 0.7 Miles

MARYLAND DEPARTMENT OF NATURAL RESOURCES

Wildlife & Heritage Service
7/18/2022

Habitat Protection Areas in the Critical Area
Harford County

South Lapidum -- Listed Species Site



Critical Area Habitat Protection Area

Critical Area (revised)

4

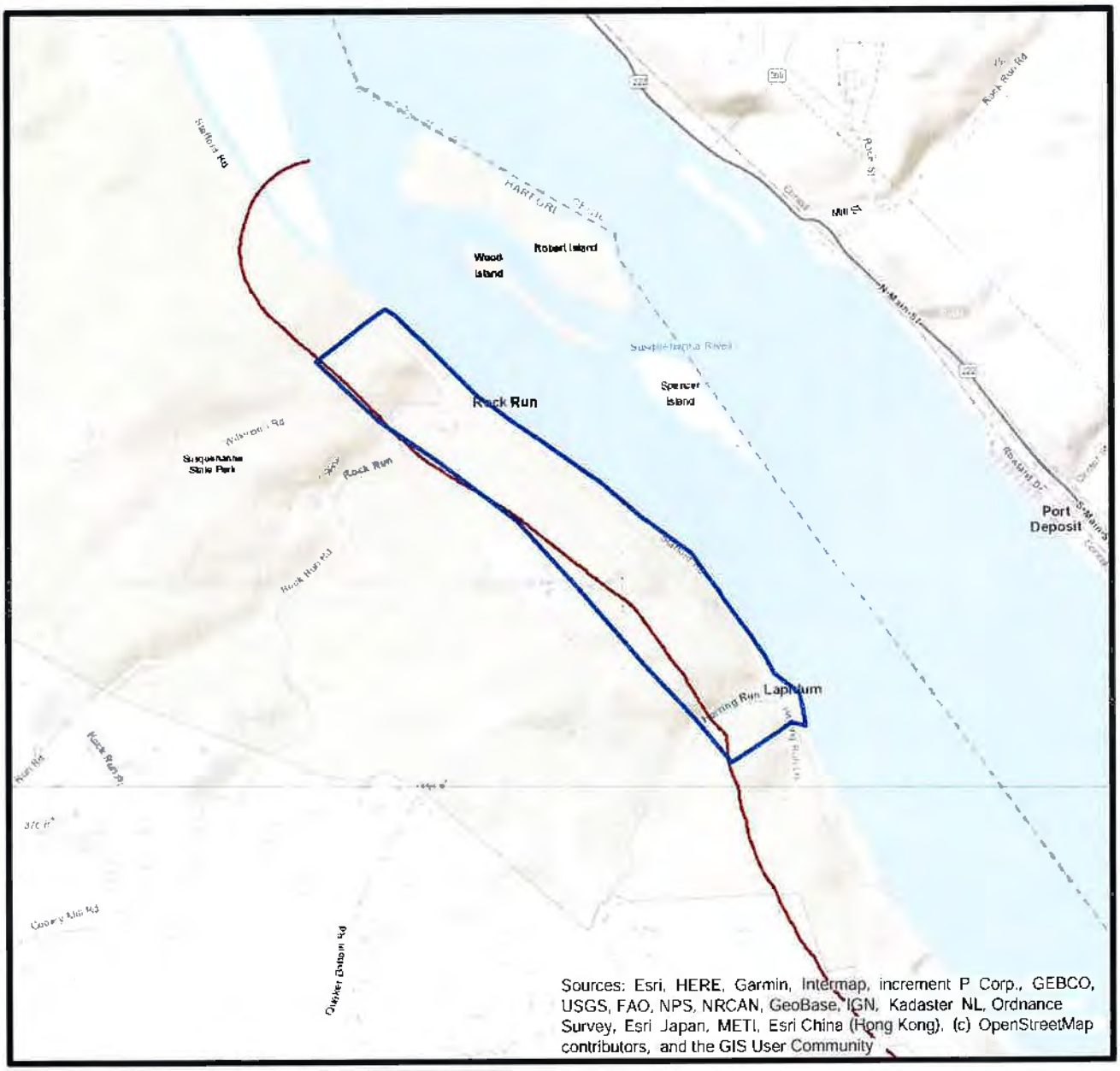
0 0.175 0.35 0.7 Miles

MARYLAND DEPARTMENT OF NATURAL RESOURCES

Wildlife & Heritage Service
7/18/2022

Habitat Protection Areas in the Critical Area
Harford County

Stafford Road Slopes -- Listed Species Site



Critical Area Habitat Protection Area

Critical Area (revised)

4

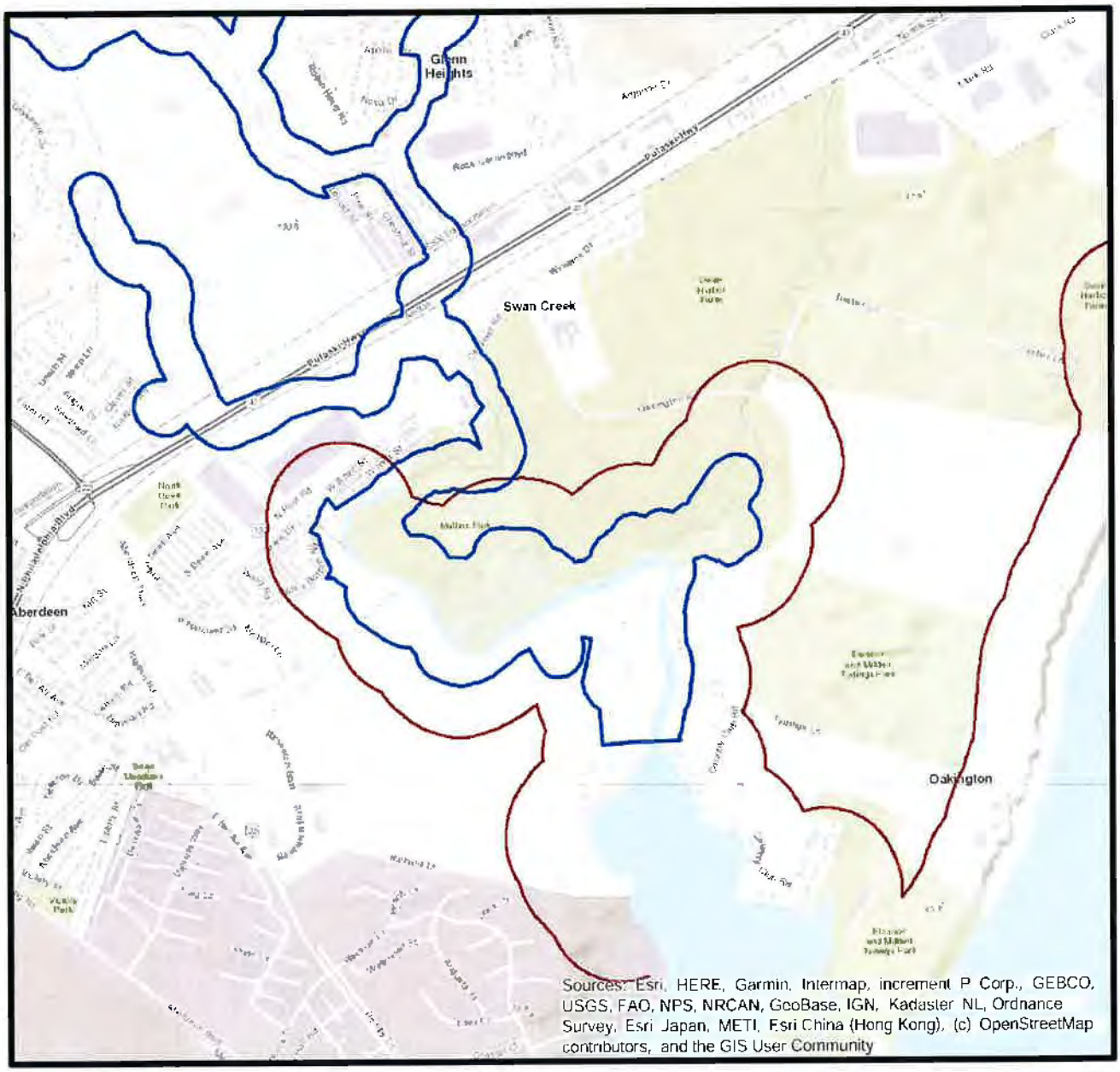
0 0.175 0.35 0.7 Miles

MARYLAND DEPARTMENT OF NATURAL RESOURCES

Wildlife & Heritage Service
7/18/2022

Habitat Protection Areas in the Critical Area
Harford County

Swan Creek -- Listed Species Site



Critical Area Habitat Protection Area

Critical Area (revised)

4

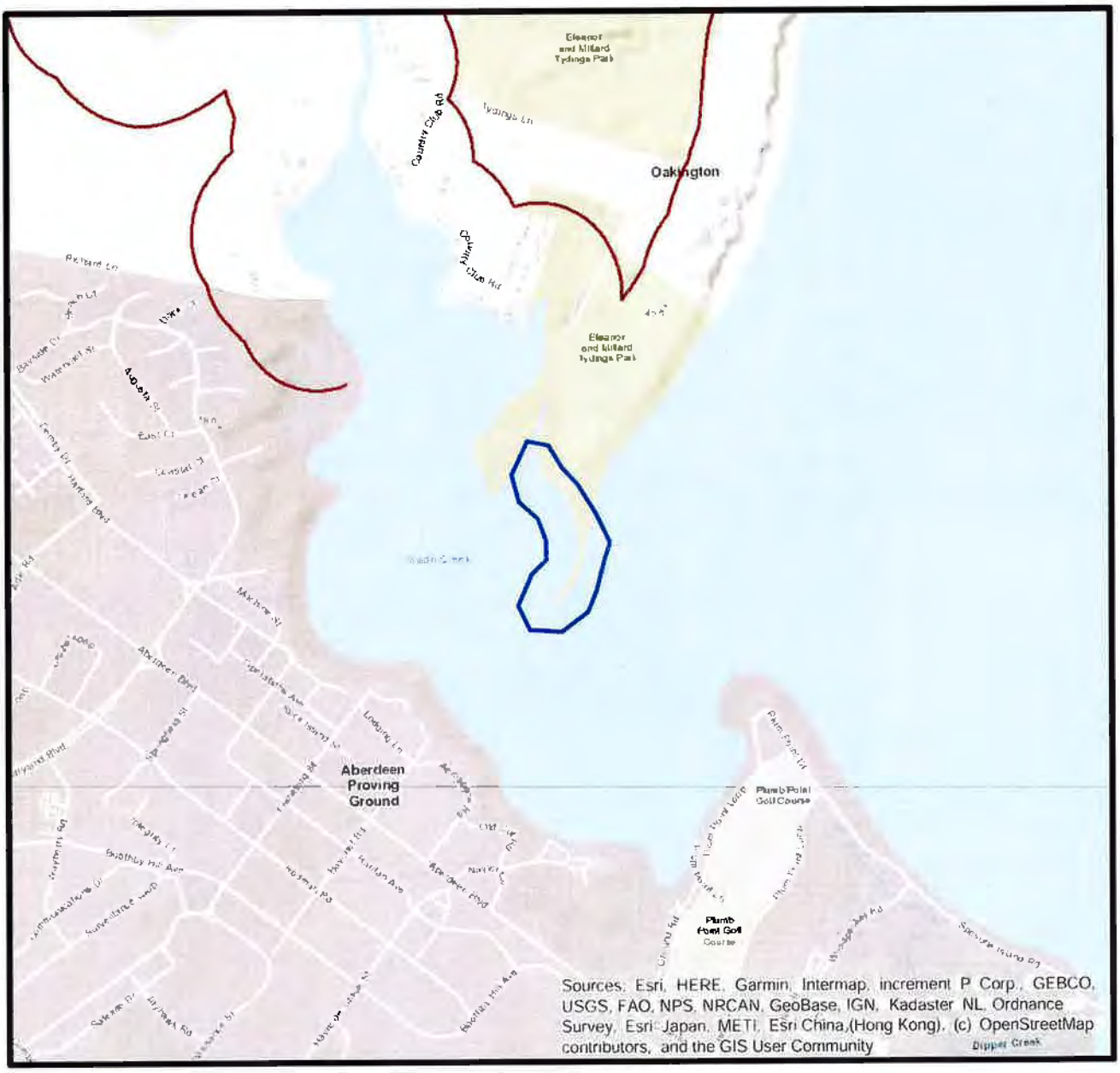
MARYLAND DEPARTMENT OF NATURAL RESOURCES

0 0.175 0.35 0.7 Miles

Wildlife & Heritage Service
7/18/2022

Habitat Protection Areas in the Critical Area
Harford County

Swan Creek Point -- Locally Significant Habitat



Critical Area Habitat Protection Area

Critical Area (revised)

4

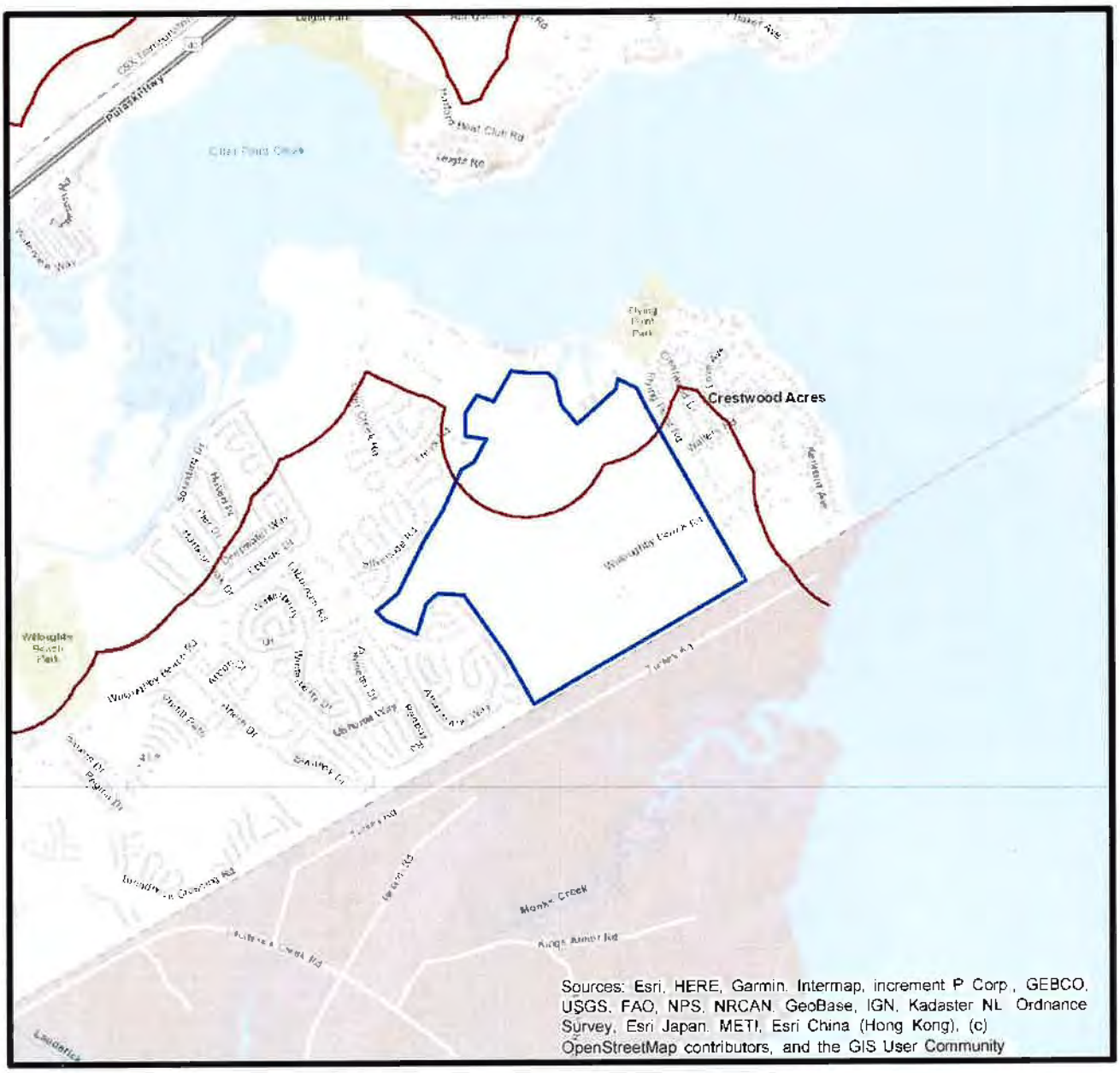
MARYLAND DEPARTMENT OF NATURAL RESOURCES

0 0.175 0.35 0.7 Miles

Wildlife & Heritage Service
7/18/2022

Habitat Protection Areas in the Critical Area
Harford County

Willoughby Woods -- Locally Significant Habitat



Critical Area Habitat Protection Area

Critical Area (revised)

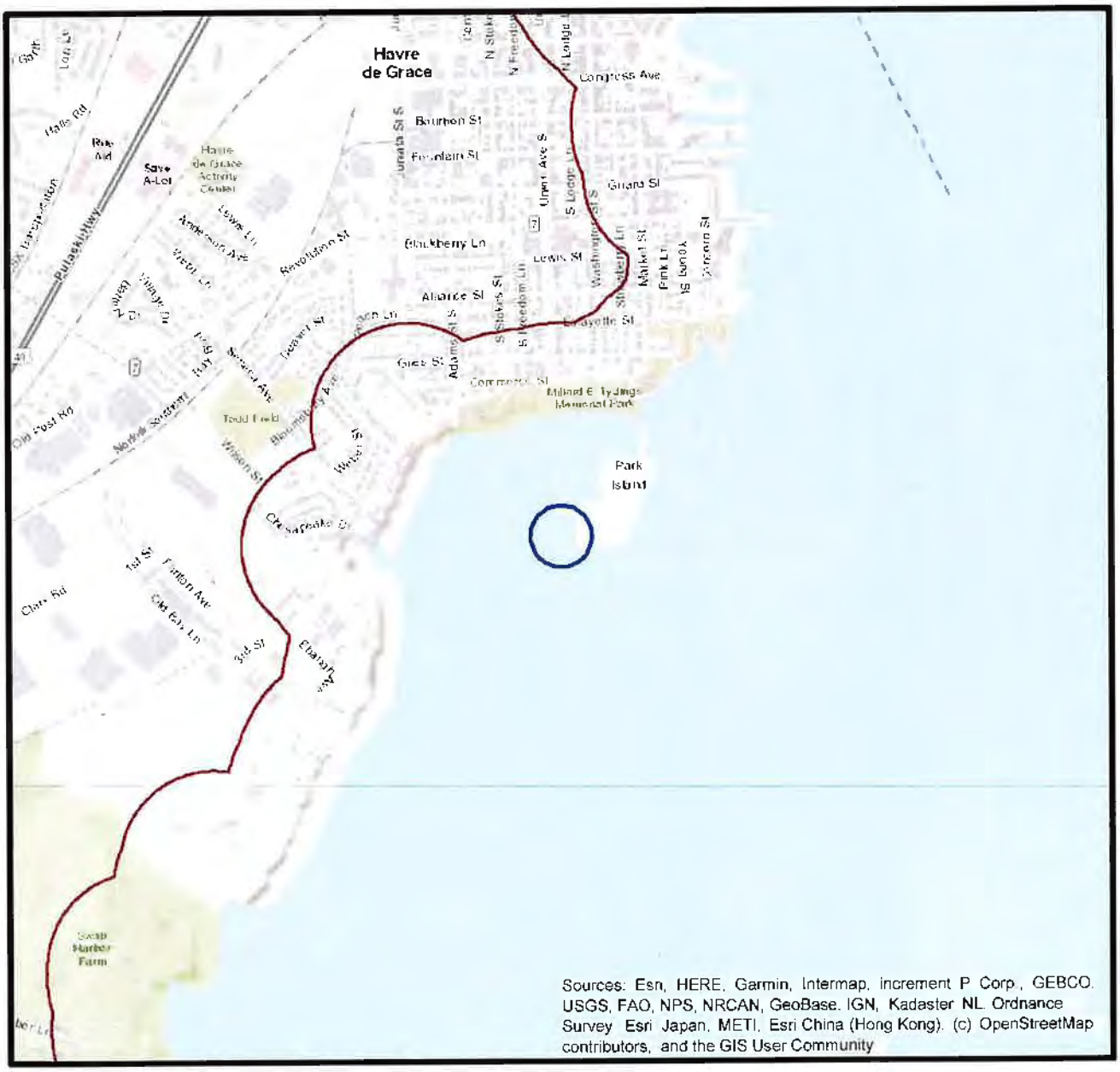
0 0.15 0.3 0.6 Miles

MARYLAND DEPARTMENT OF NATURAL RESOURCES

Wildlife & Heritage Service
7/18/2022

Habitat Protection Areas in the Critical Area
Harford County

Park Island -- Colonial Waterbird Colony



Colonial Waterbird Colony

Critical Area (revised)

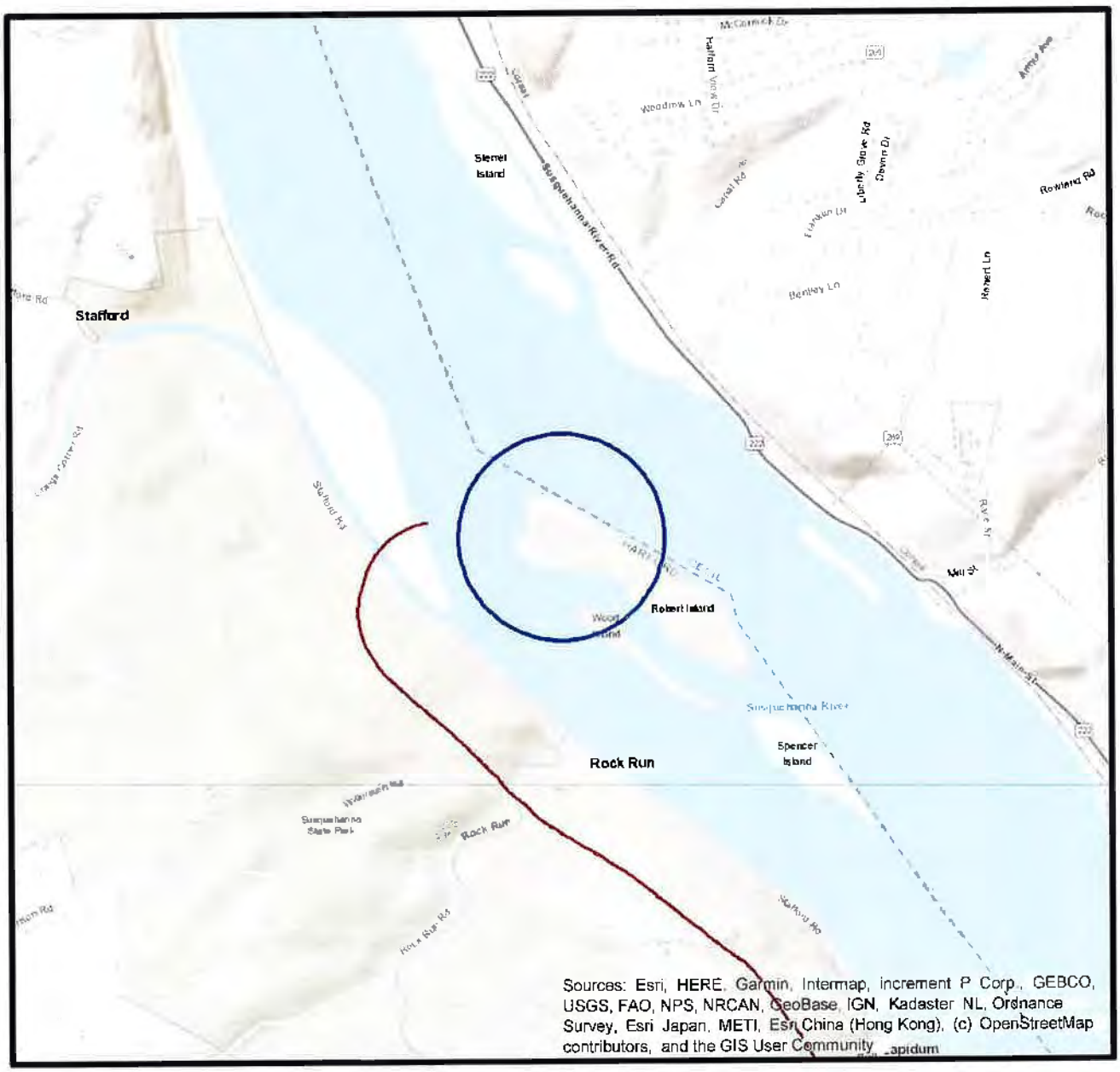
0 0.125 0.25 0.5 Miles

MARYLAND DEPARTMENT OF NATURAL RESOURCES

Wildlife & Heritage Service
7/18/2022

Habitat Protection Areas in the Critical Area
Harford County

Robert Island -- Colonial Waterbird Colony



Colonial Waterbird Colony

Critical Area (revised)

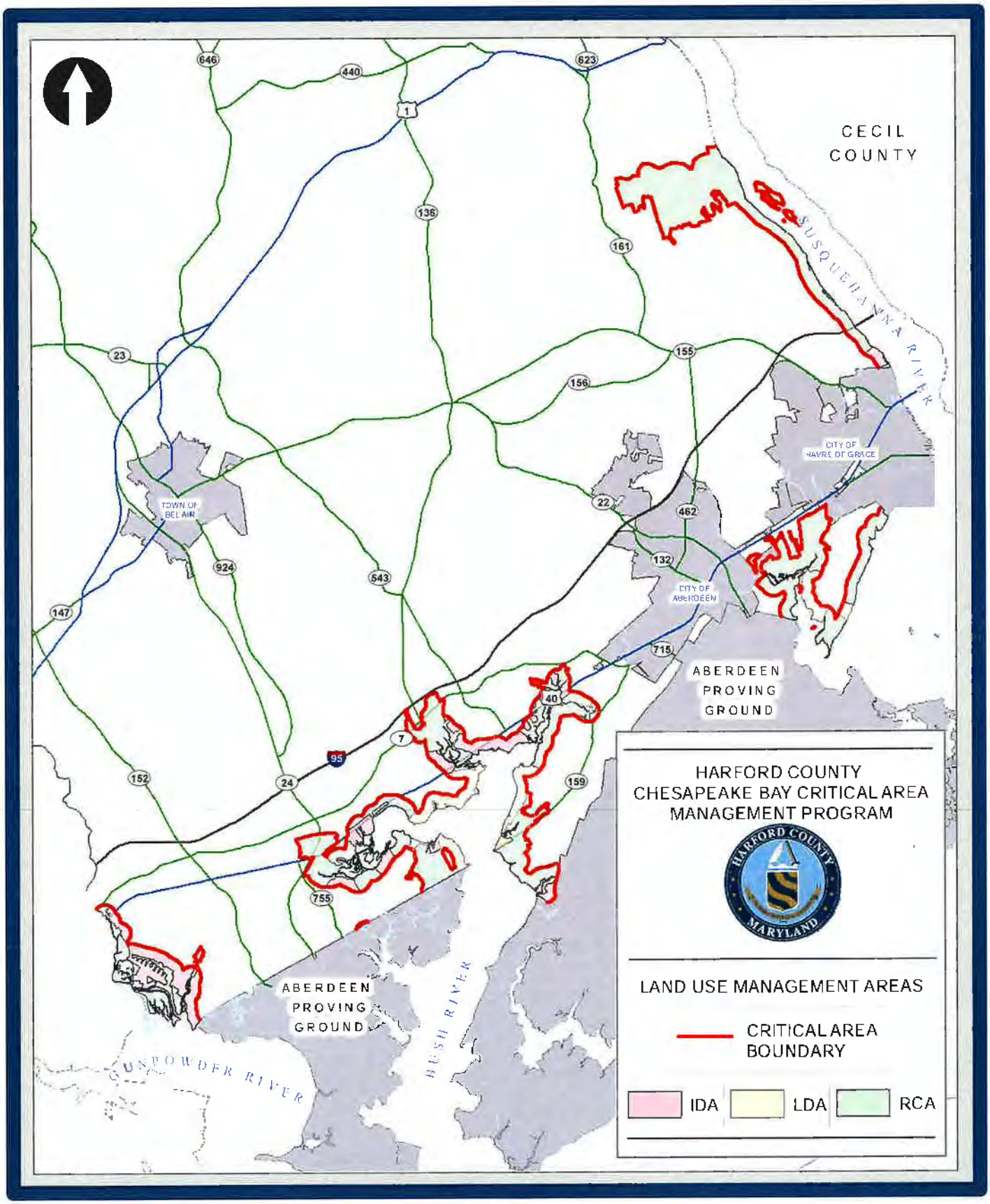
0 0.175 0.35 0.7 Miles

MARYLAND DEPARTMENT OF NATURAL RESOURCES

Wildlife & Heritage Service
7/18/2022

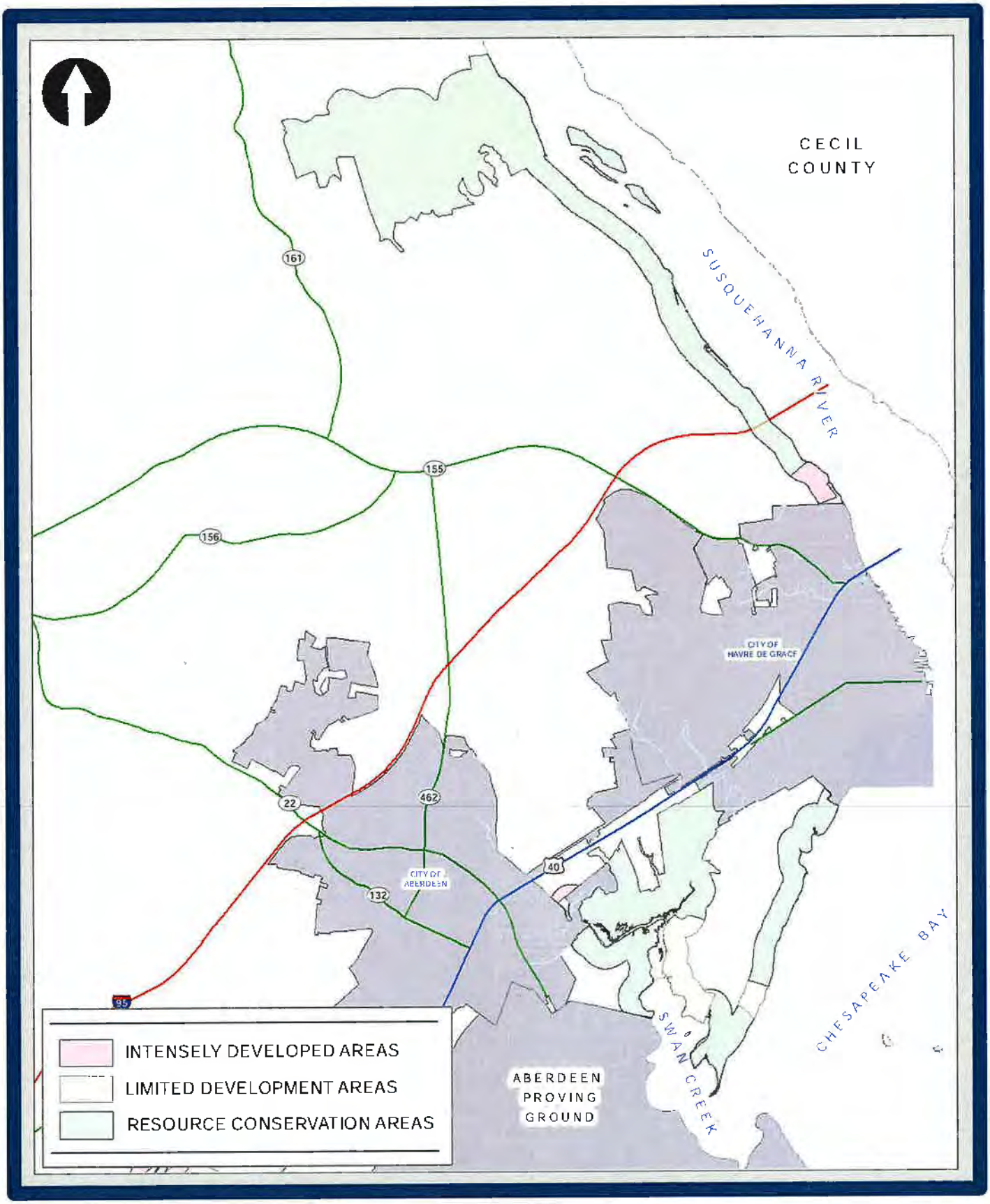
ATTACHMENT 3

FIGURE 1



Attachment 3

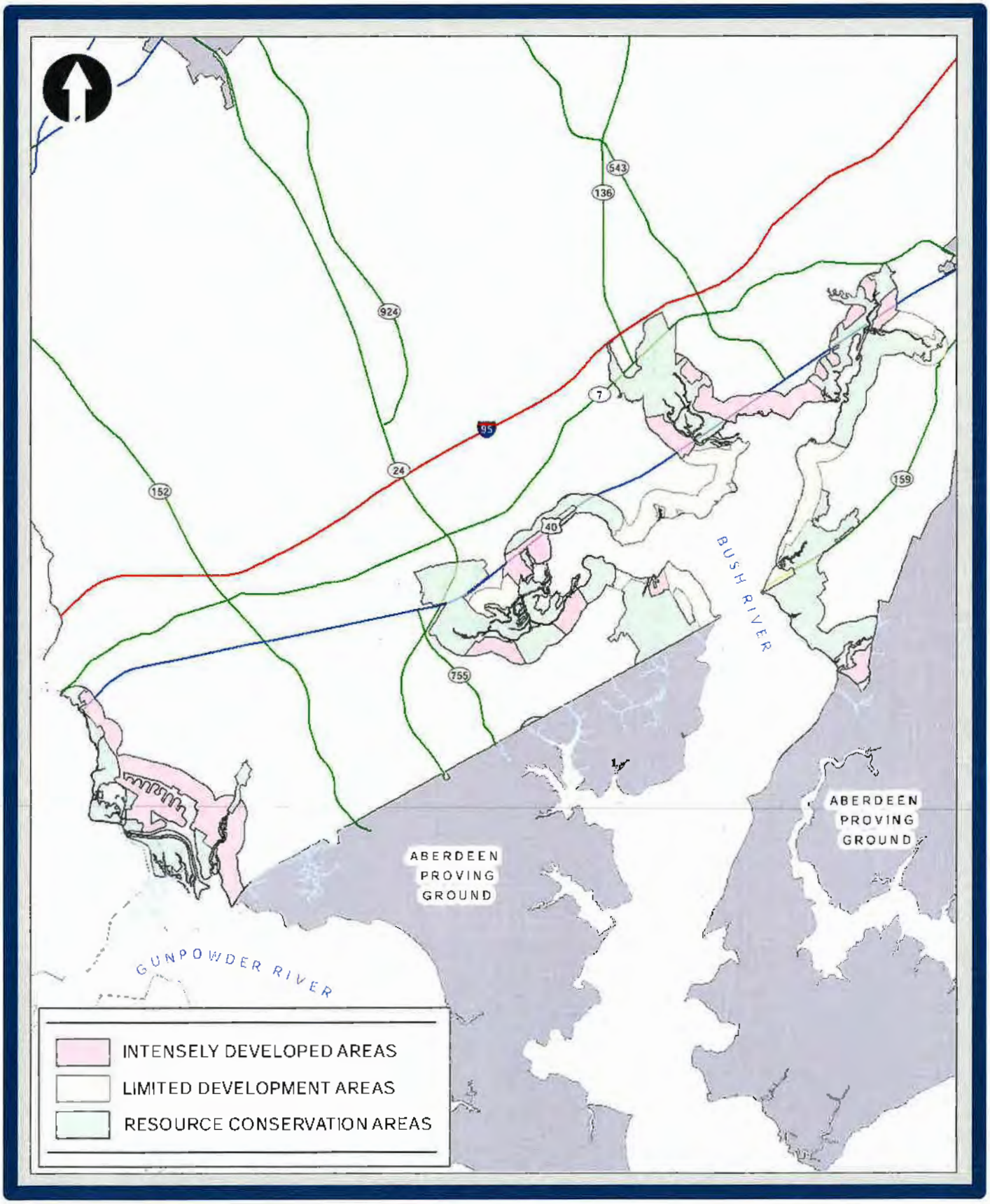
FIGURE 2



LAND USE MANAGEMENT AREAS IN THE SUSQUEHANNA RIVER &
SWAN CREEK PORTIONS OF THE CRITICAL AREA

Attachment 3

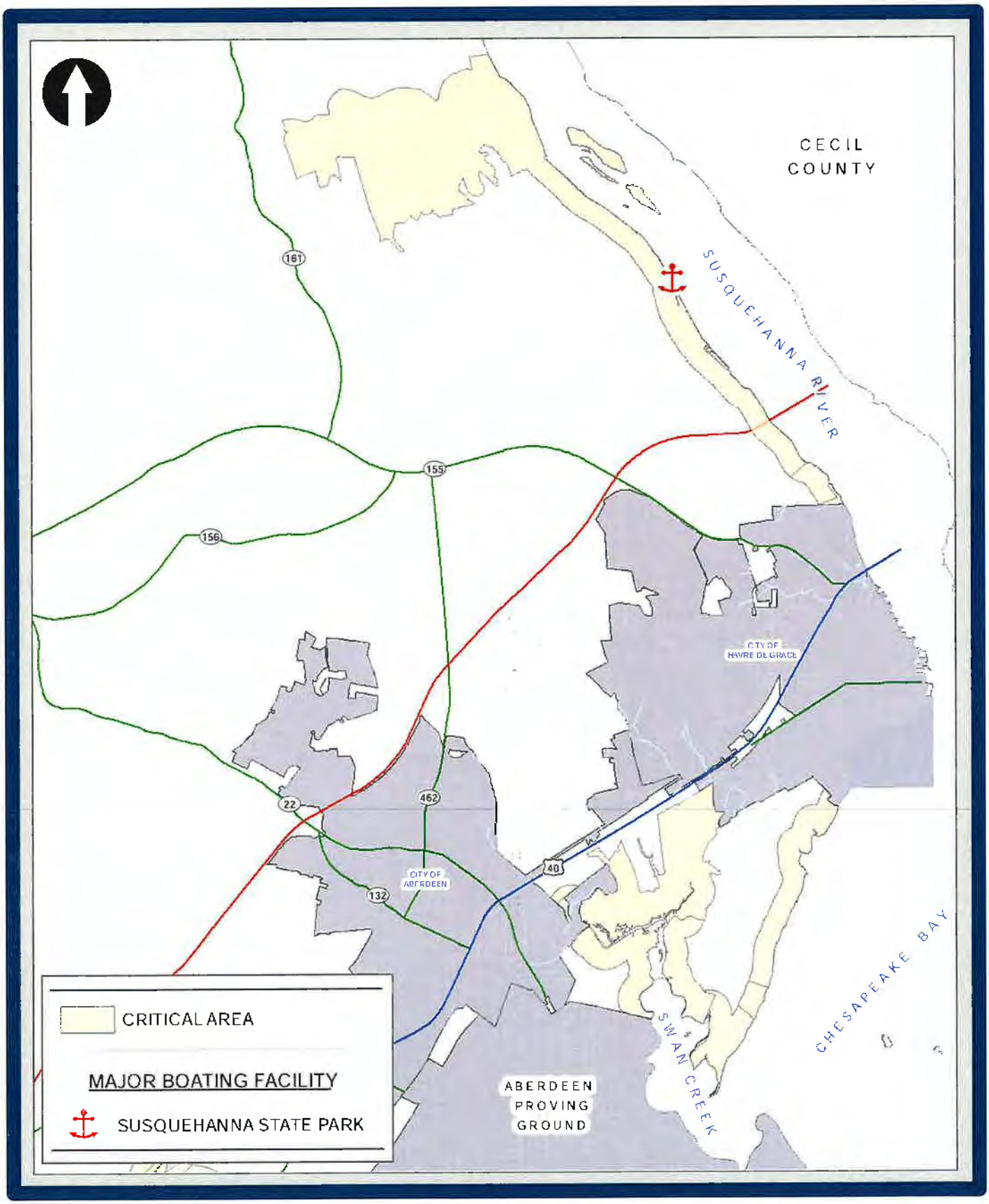
FIGURE 3



LAND USE MANAGEMENT AREAS IN THE GUNPOWDER RIVER &
BUSH RIVER PORTIONS OF THE CRITICAL AREA

Attachment 3

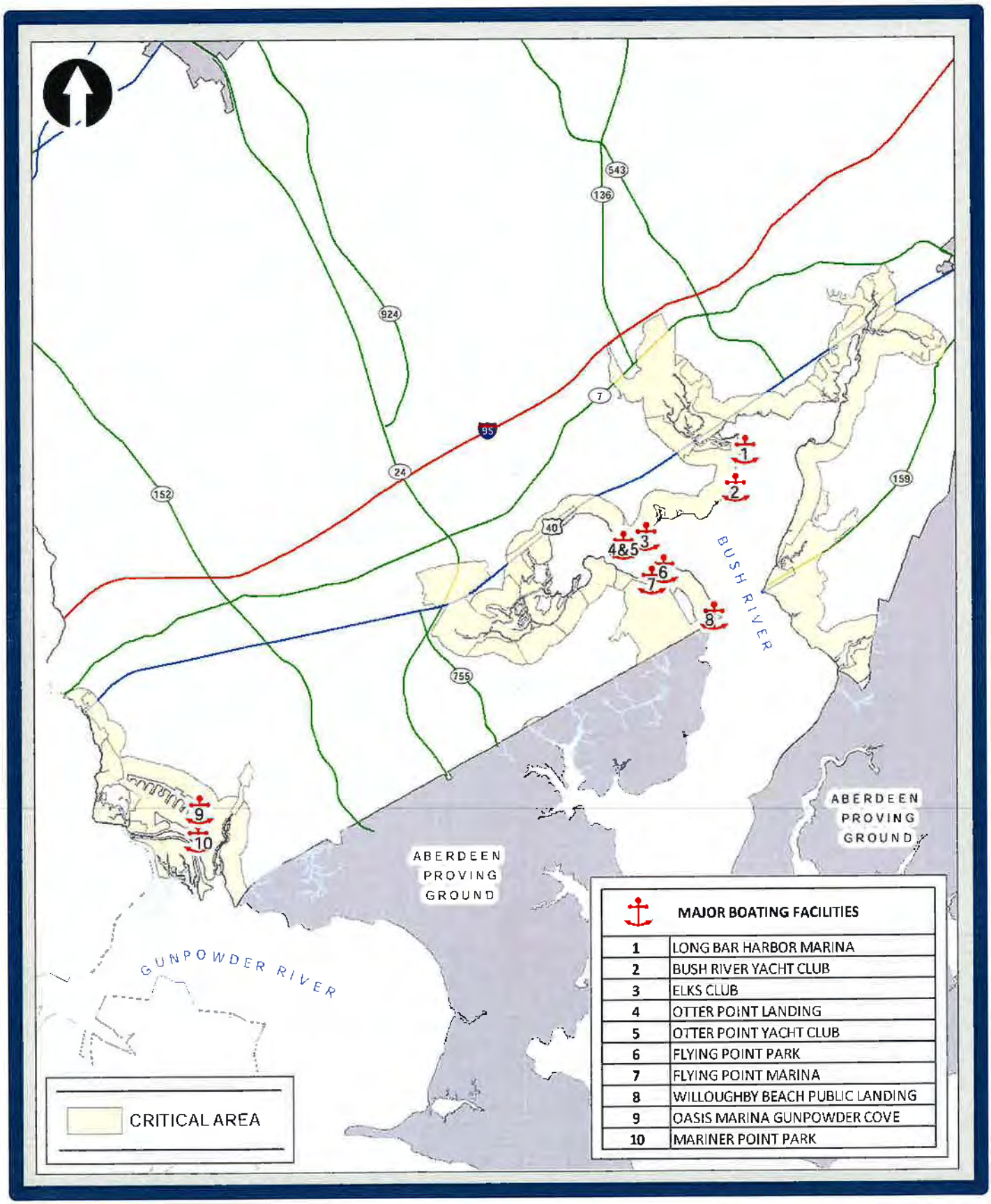
FIGURE 4



MARINAS AND PUBLIC LANDINGS IN THE SUSQUEHANNA RIVER &
SWAN CREEK PORTIONS OF THE CRITICAL AREA

Attachment 3

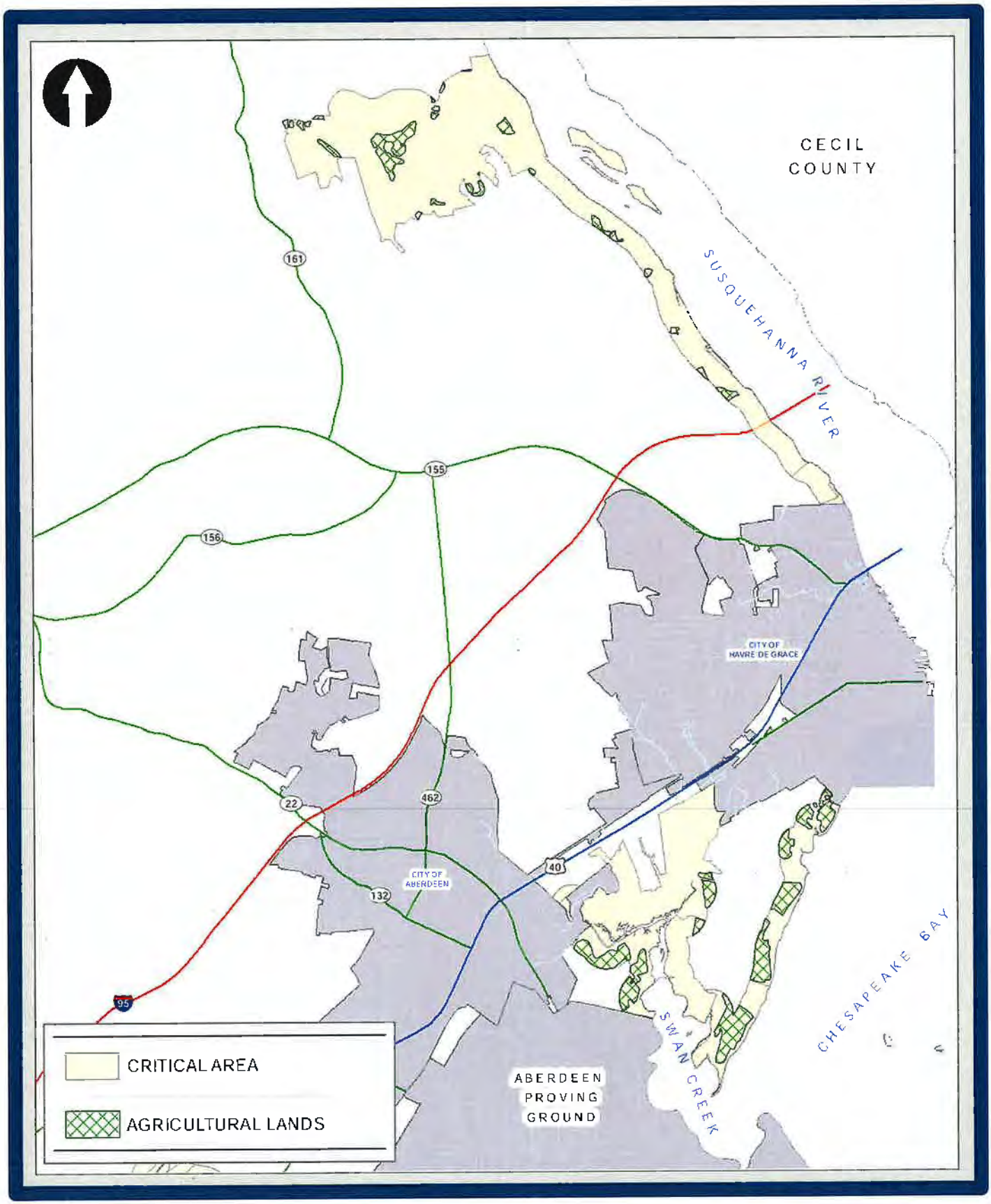
FIGURE 5



MARINAS AND PUBLIC LANDINGS IN THE GUNPOWDER RIVER &
BUSH RIVER PORTIONS OF THE CRITICAL AREA

Attachment 3

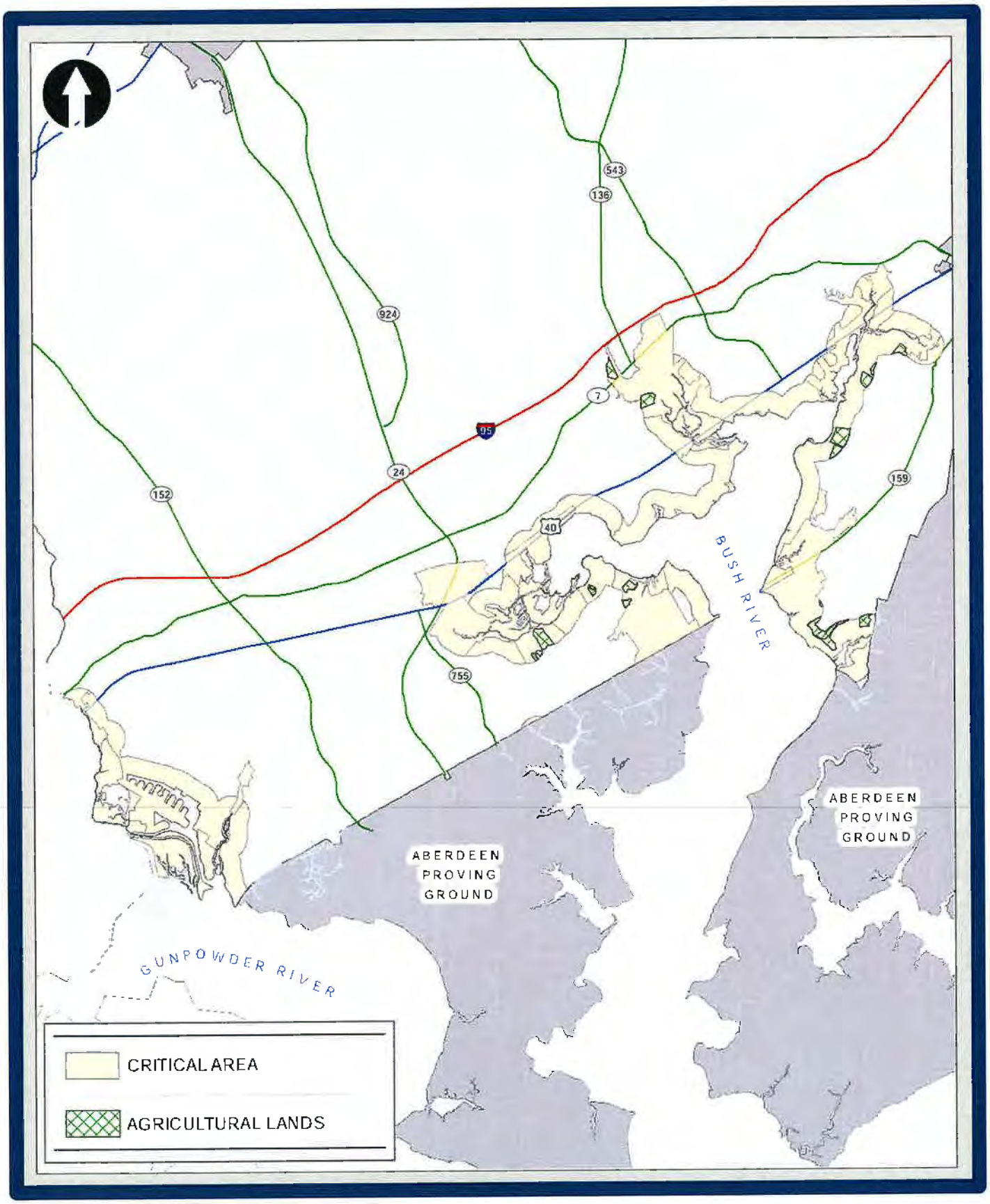
FIGURE 6



AGRICULTURAL LANDS IN THE SUSQUEHANNA RIVER &
SWAN CREEK PORTIONS OF THE CRITICAL AREA

Attachment 3

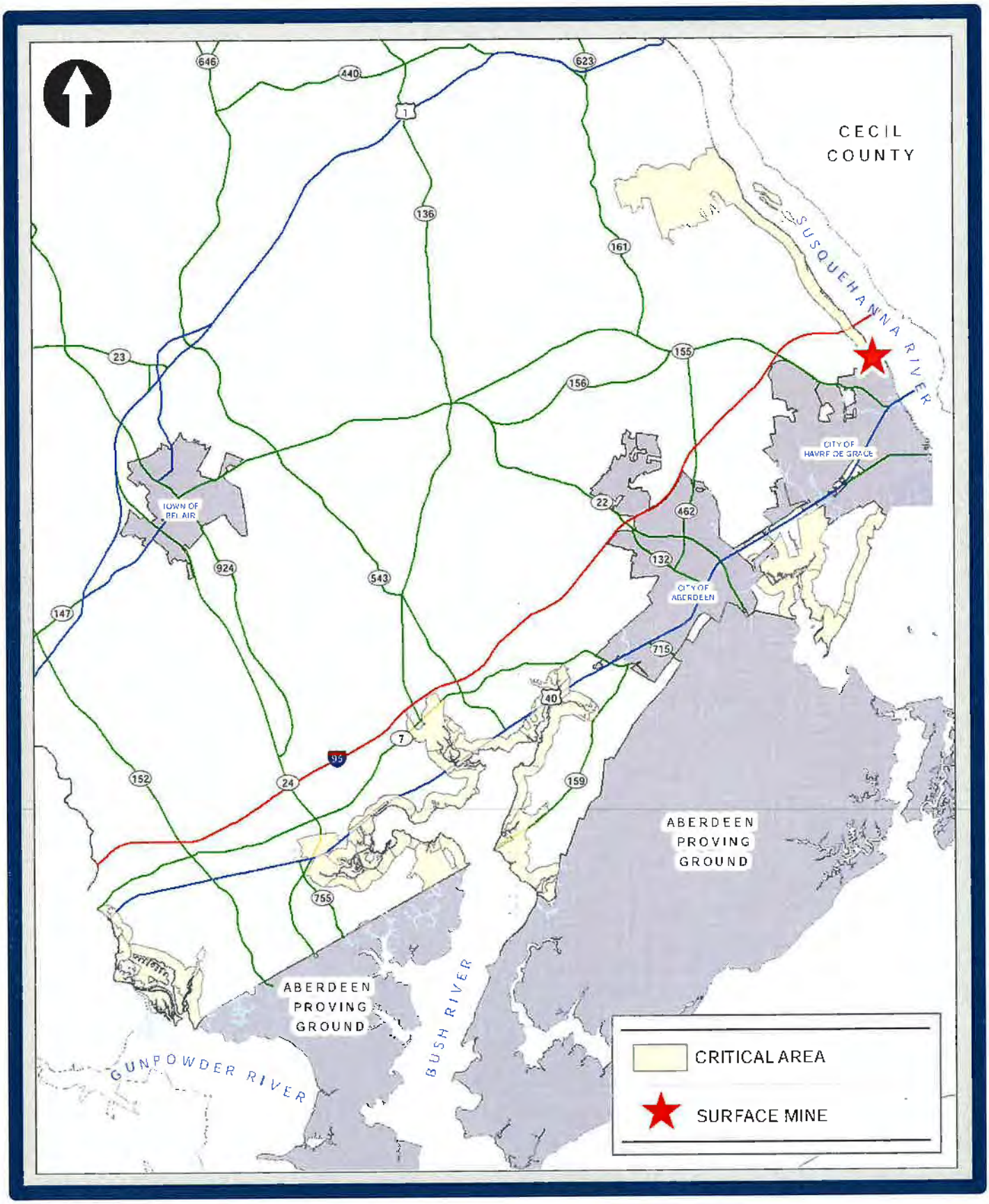
FIGURE 7



AGRICULTURAL LANDS IN THE GUNPOWDER RIVER &
BUSH RIVER PORTIONS OF THE CRITICAL AREA

Attachment 3

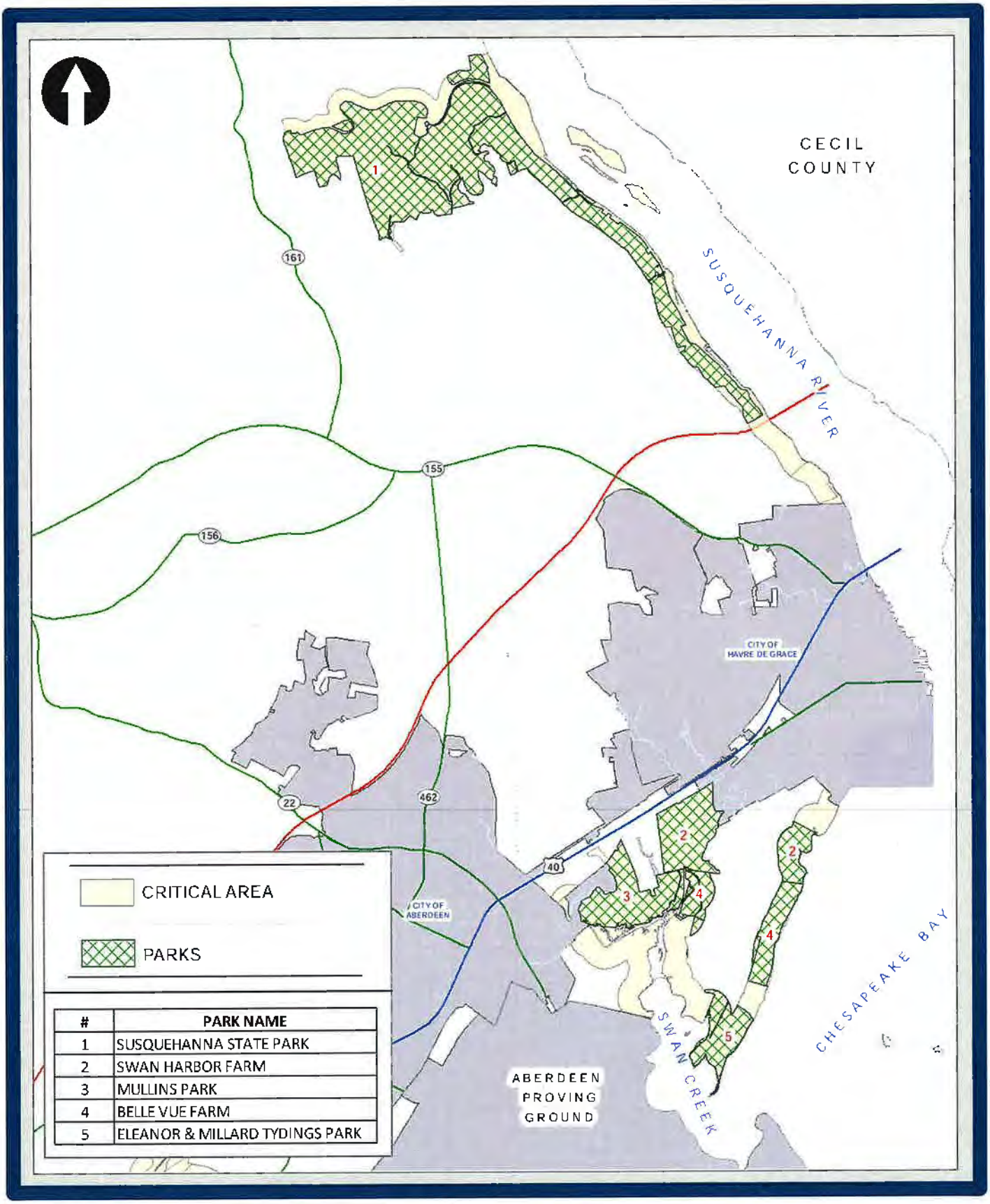
FIGURE 8



SURFACE MINE IN HARFORD COUNTY'S CRITICAL AREA

Attachment 3

FIGURE 9

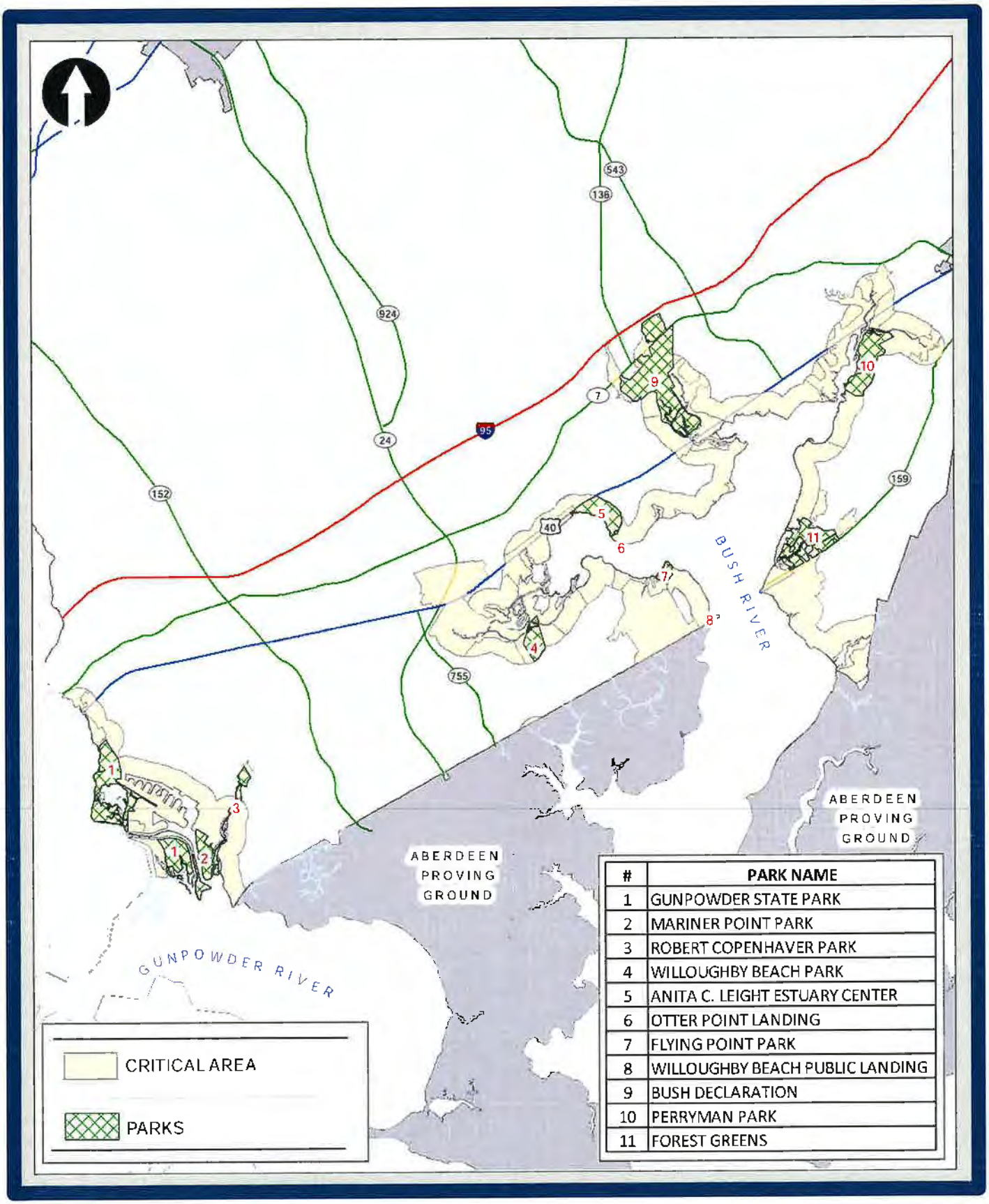


#	PARK NAME
1	SUSQUEHANNA STATE PARK
2	SWAN HARBOR FARM
3	MULLINS PARK
4	BELLE VUE FARM
5	ELEANOR & MILLARD TYDINGS PARK

PARKS AND OTHER DEDICATED NATURAL AREAS IN THE SUSQUEHANNA RIVER & SWAN CREEK PORTIONS OF THE CRITICAL AREA

Attachment 3

FIGURE 10

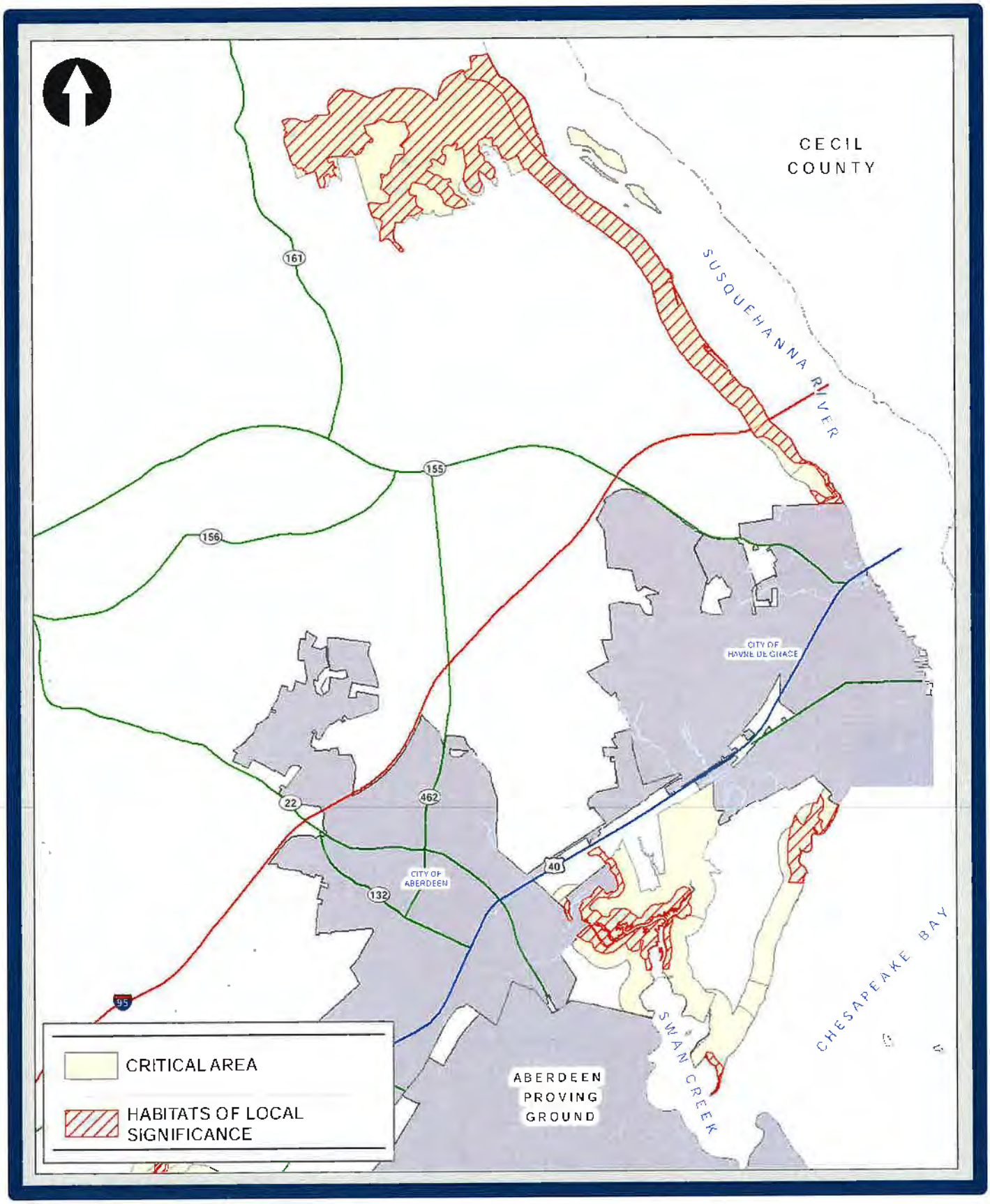


#	PARK NAME
1	GUNPOWDER STATE PARK
2	MARINER POINT PARK
3	ROBERT COPENHAVER PARK
4	WILLOUGHBY BEACH PARK
5	ANITA C. LEIGHT ESTUARY CENTER
6	OTTER POINT LANDING
7	FLYING POINT PARK
8	WILLOUGHBY BEACH PUBLIC LANDING
9	BUSH DECLARATION
10	PERRYMAN PARK
11	FOREST GREENS

PARKS AND OTHER DEDICATED NATURAL AREAS IN THE GUNPOWDER RIVER & BUSH RIVER PORTIONS OF THE CRITICAL AREA

Attachment 3

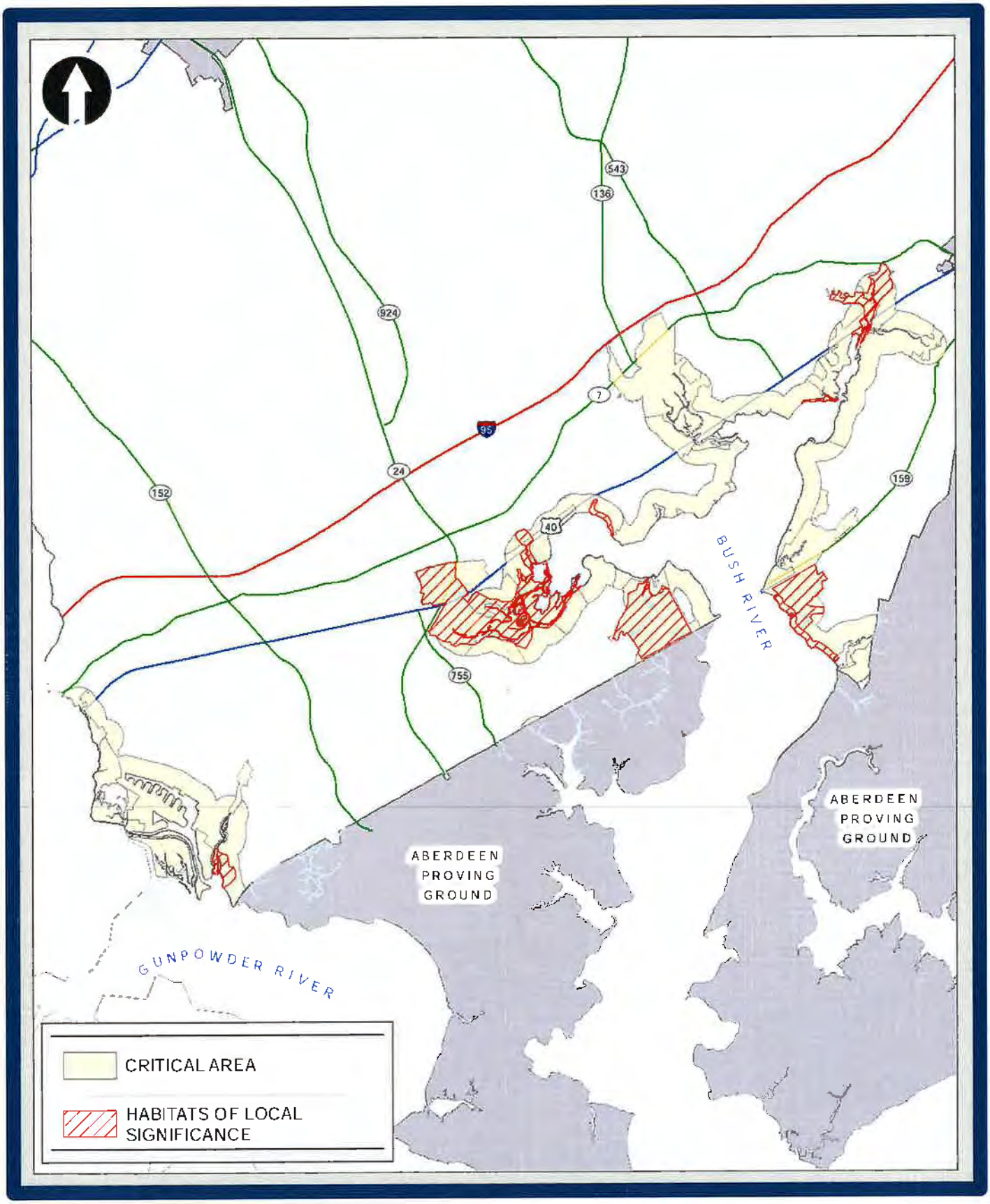
FIGURE 11



HABITATS OF LOCAL SIGNIFICANCE IN THE SUSQUEHANNA RIVER &
SWAN CREEK PORTIONS OF THE CRITICAL AREA

Attachment 3

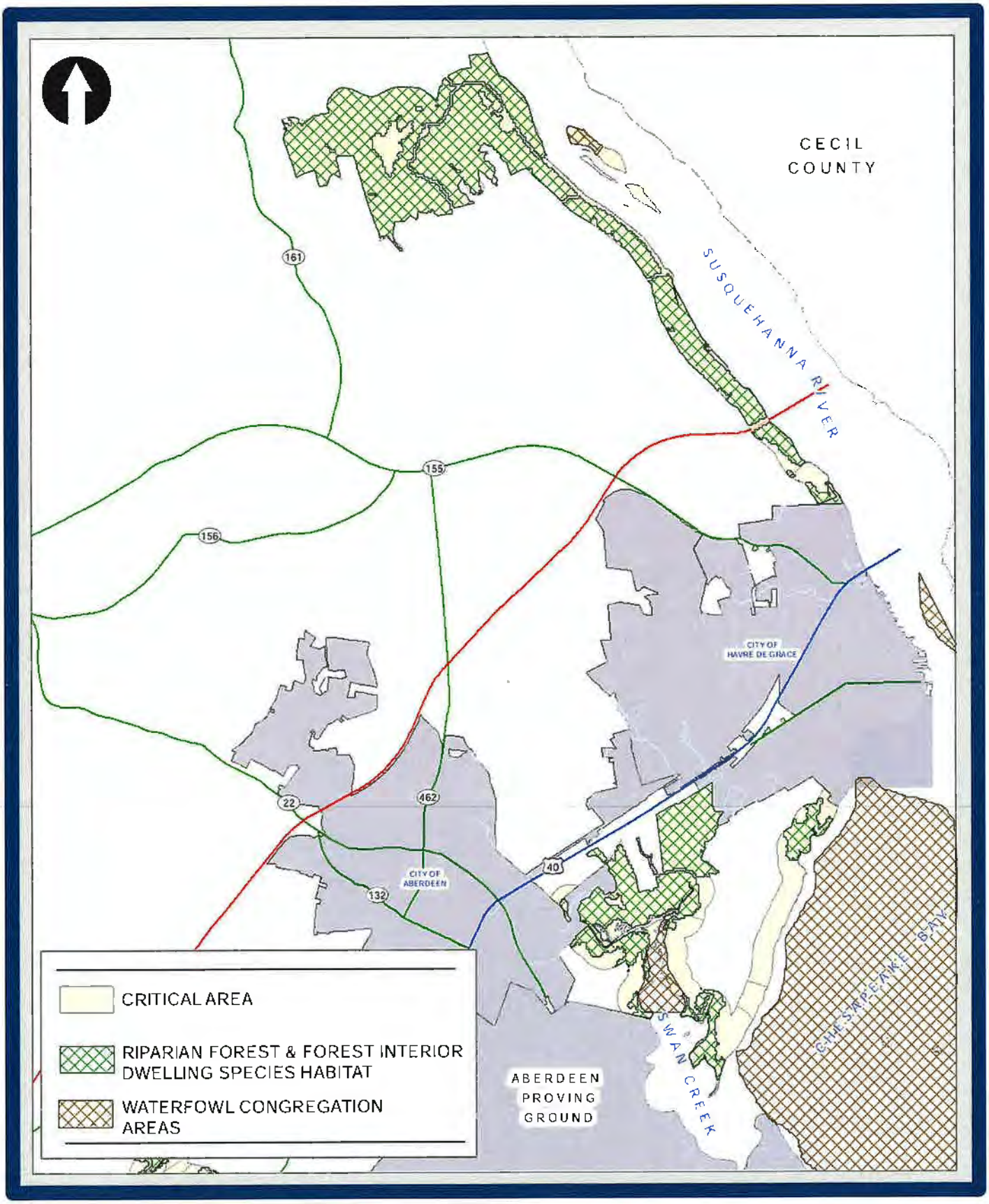
FIGURE 12



HABITATS OF LOCAL SIGNIFICANCE IN THE GUNPOWDER RIVER &
BUSH RIVER PORTIONS OF THE CRITICAL AREA

Attachment 3

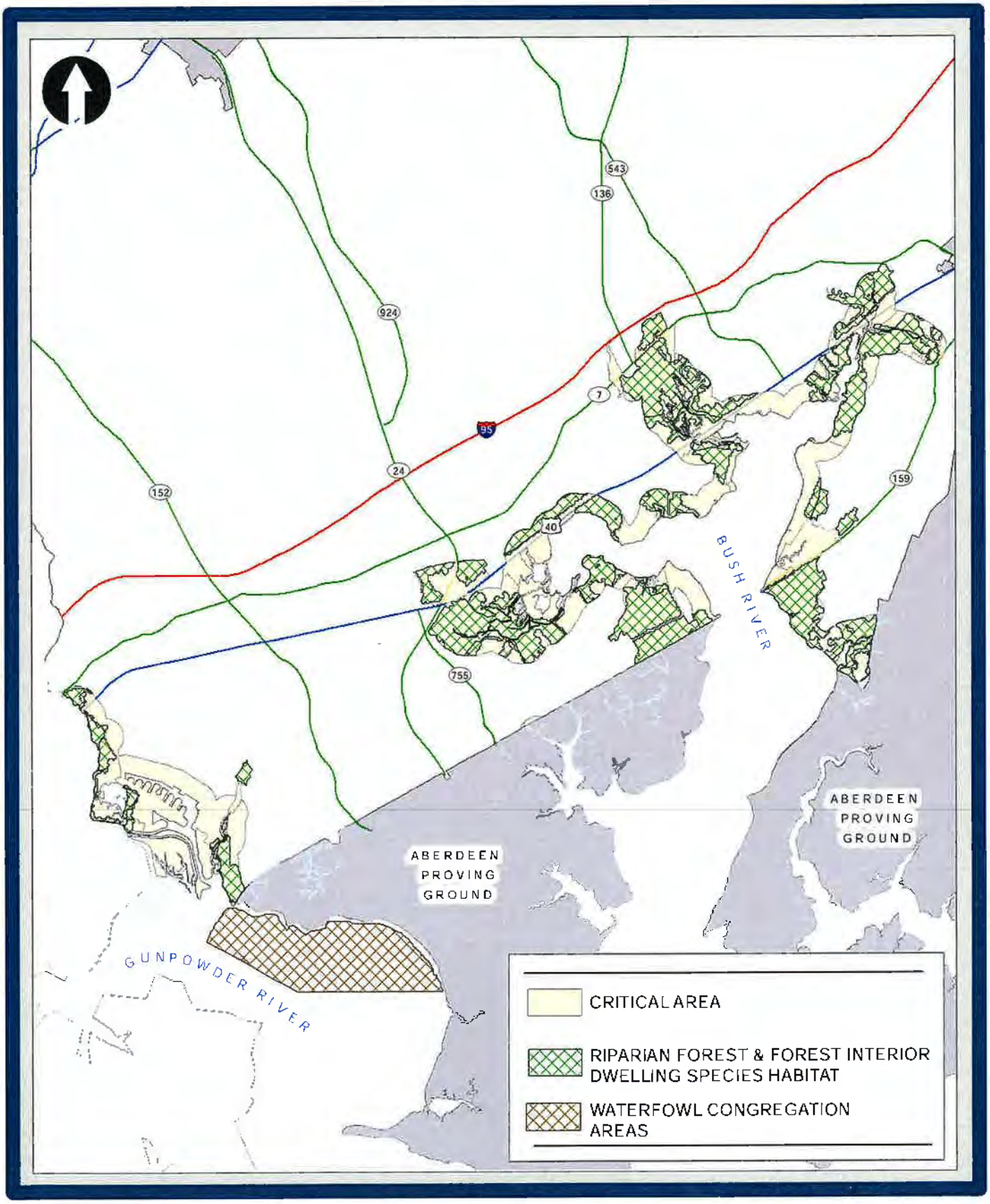
FIGURE 13



PROTECTED BIRD HABITATS IN THE SUSQUEHANNA RIVER &
SWAN CREEK PORTIONS OF THE CRITICAL AREA

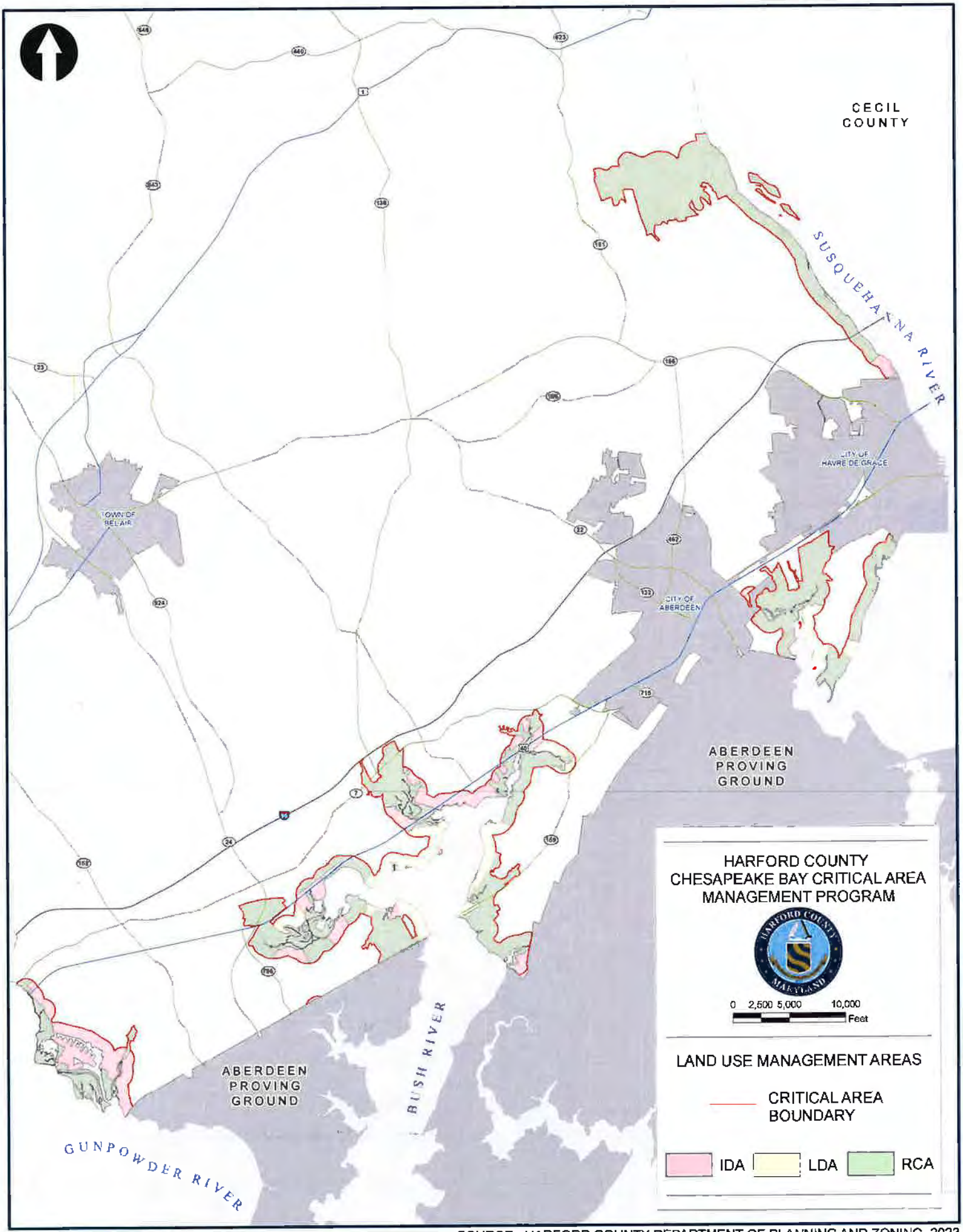
Attachment 3

FIGURE 14



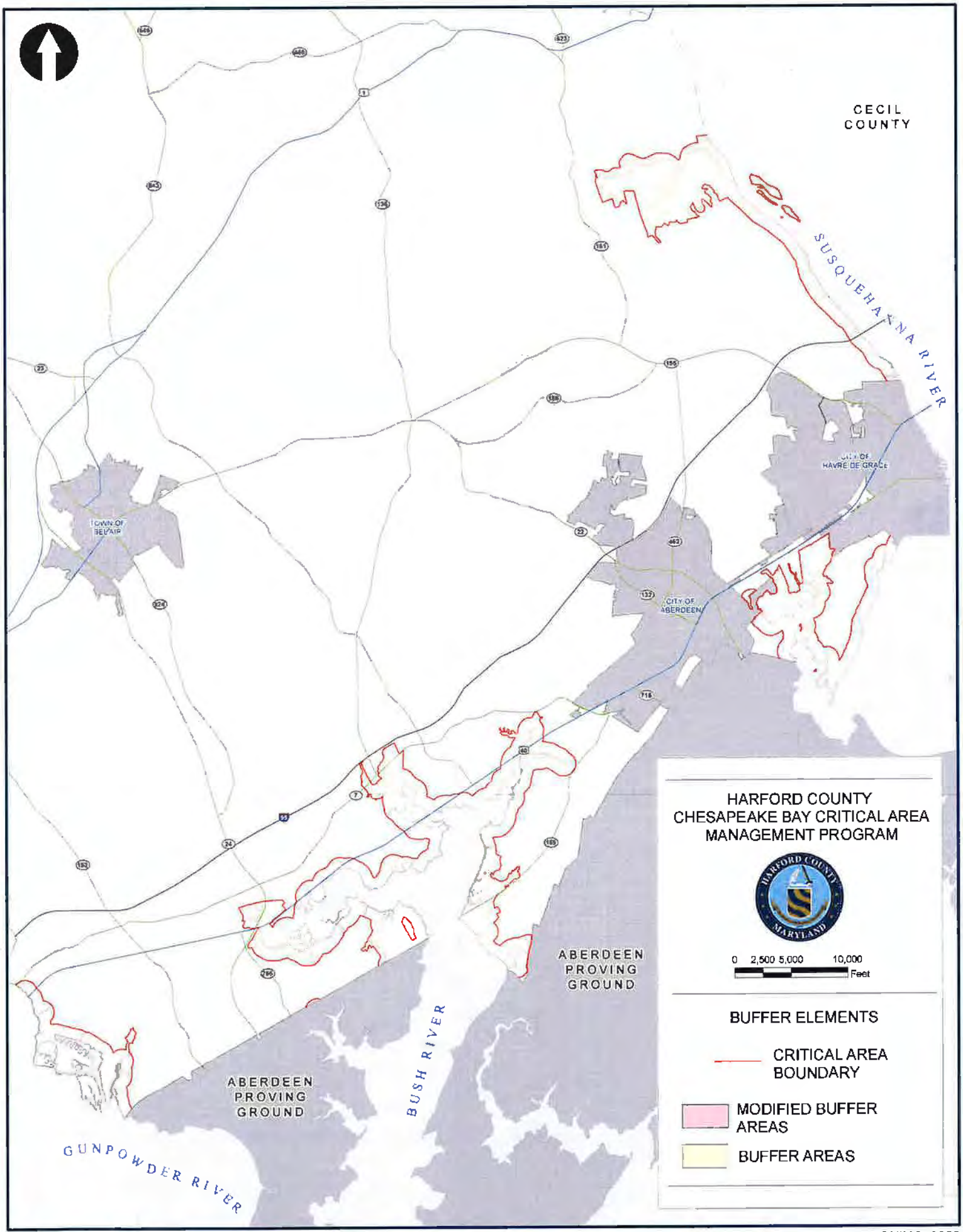
PROTECTED BIRD HABITATS IN THE GUNPOWDER RIVER &
BUSH RIVER PORTIONS OF THE CRITICAL AREA

Attachment 3



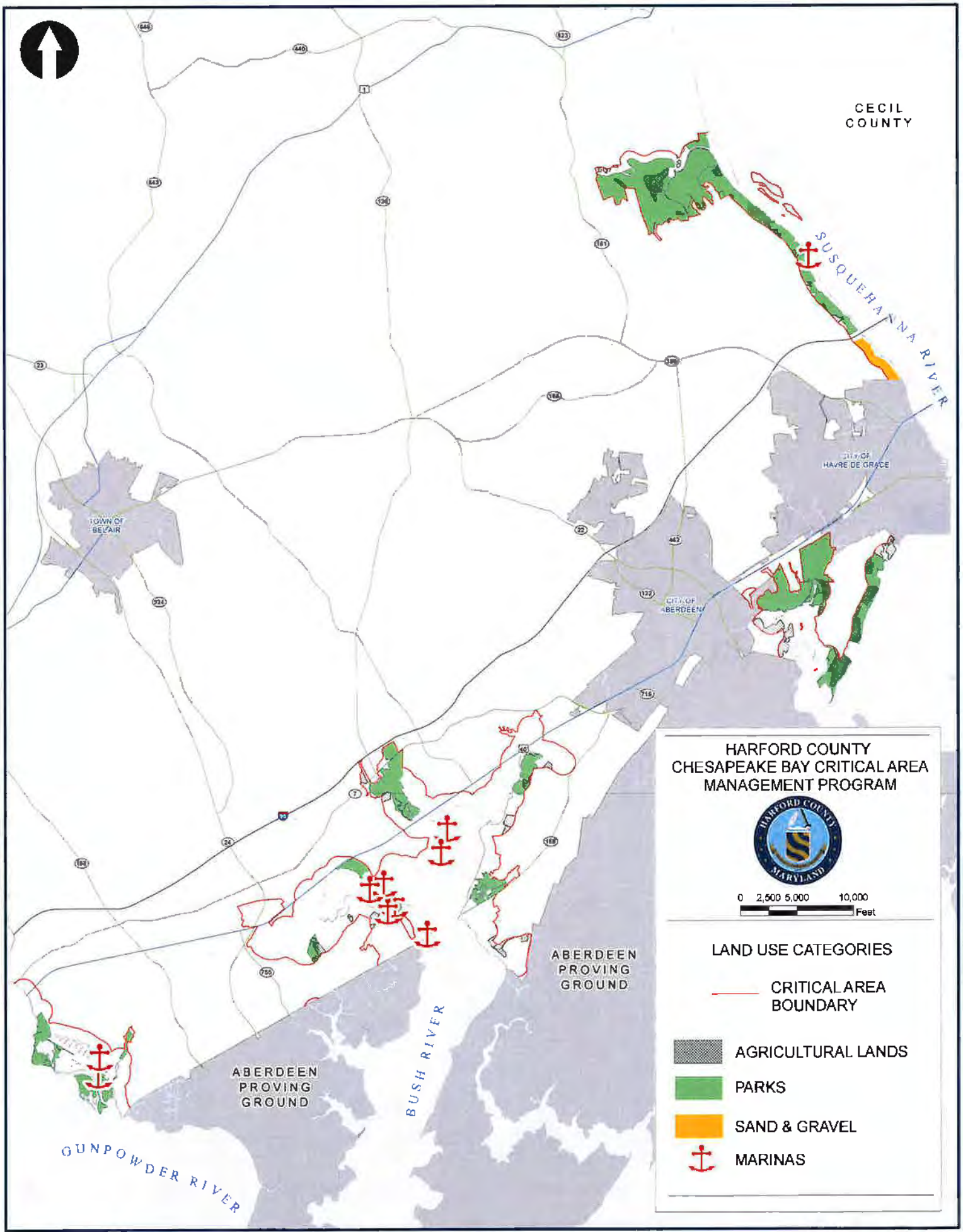
Attachment 3

SOURCE: HARFORD COUNTY DEPARTMENT OF PLANNING AND ZONING, 2023



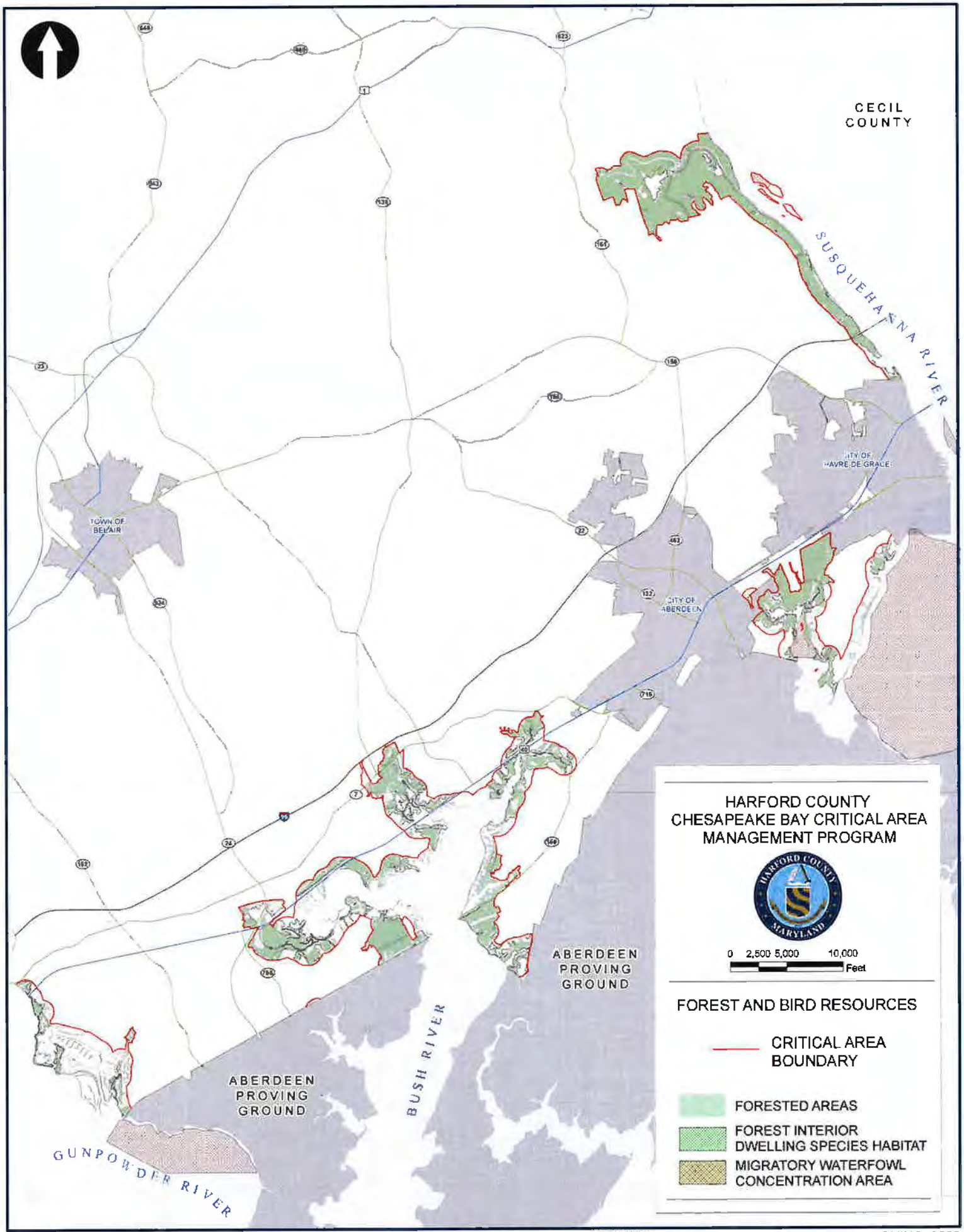
Attachment 3

SOURCE: HARFORD COUNTY DEPARTMENT OF PLANNING AND ZONING, 2023



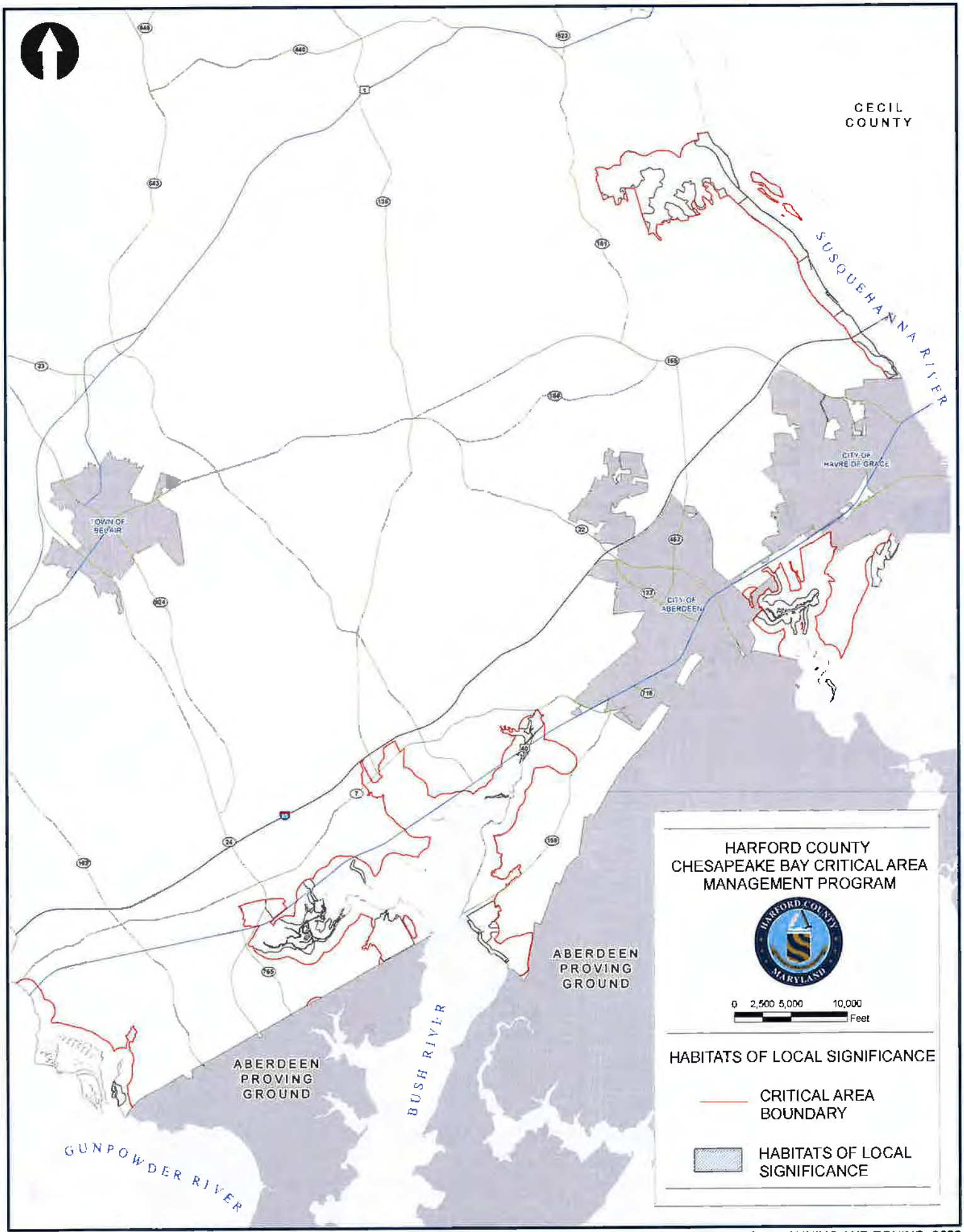
Attachment 3

SOURCE: HARFORD COUNTY DEPARTMENT OF PLANNING AND ZONING, 2023



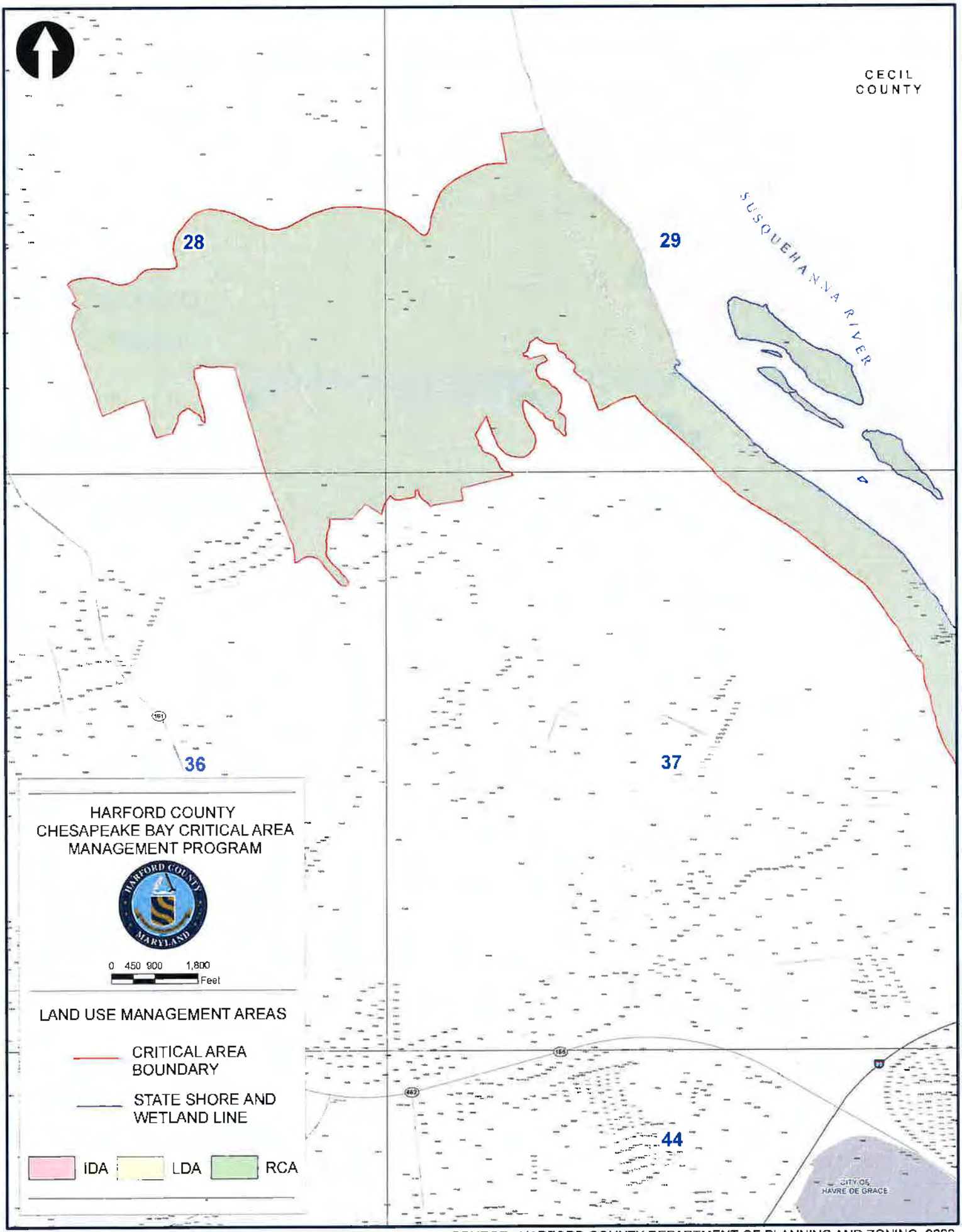
Attachment 3

SOURCE: HARFORD COUNTY DEPARTMENT OF PLANNING AND ZONING, 2023



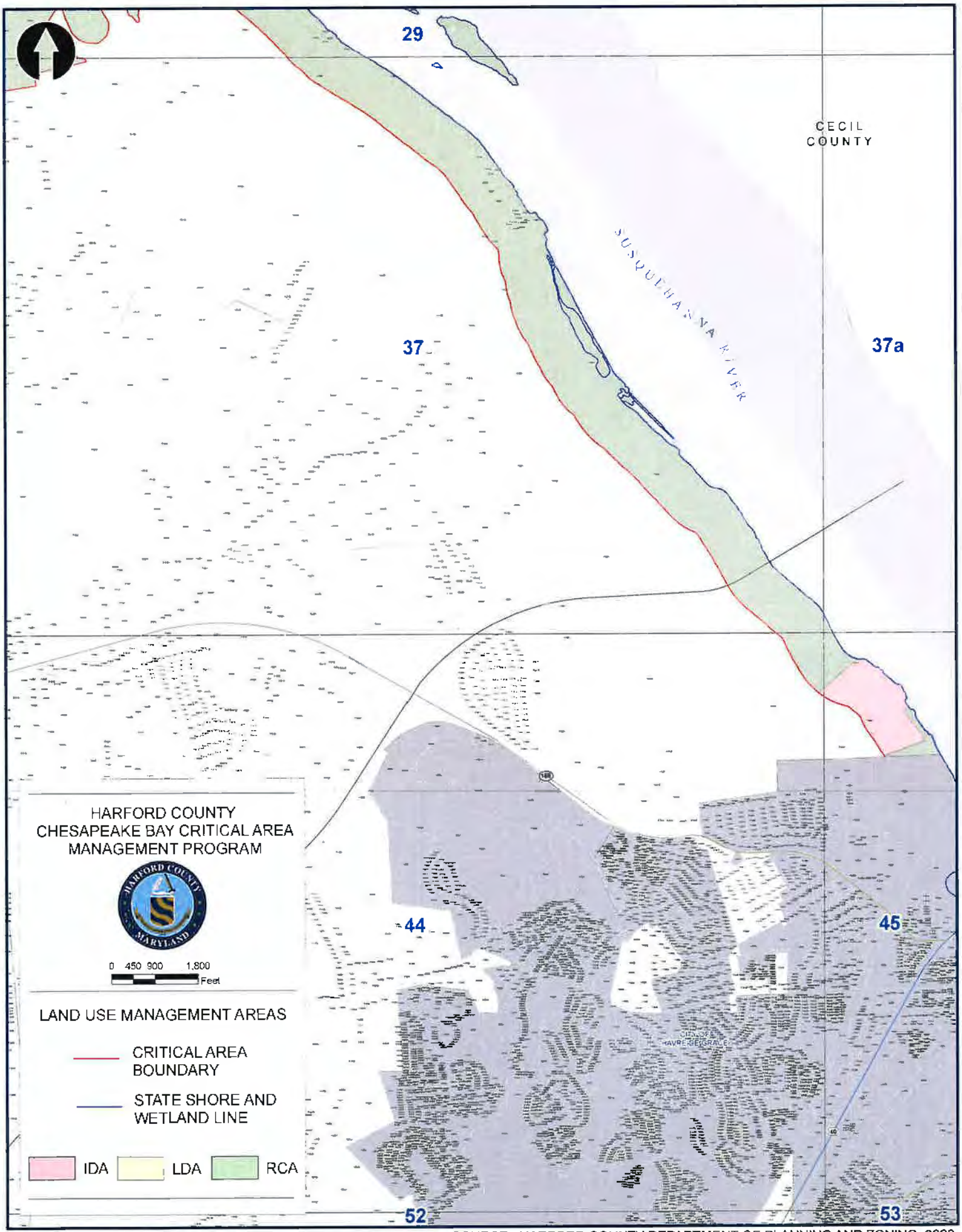
Attachment 3

SOURCE: HARFORD COUNTY DEPARTMENT OF PLANNING AND ZONING, 2023



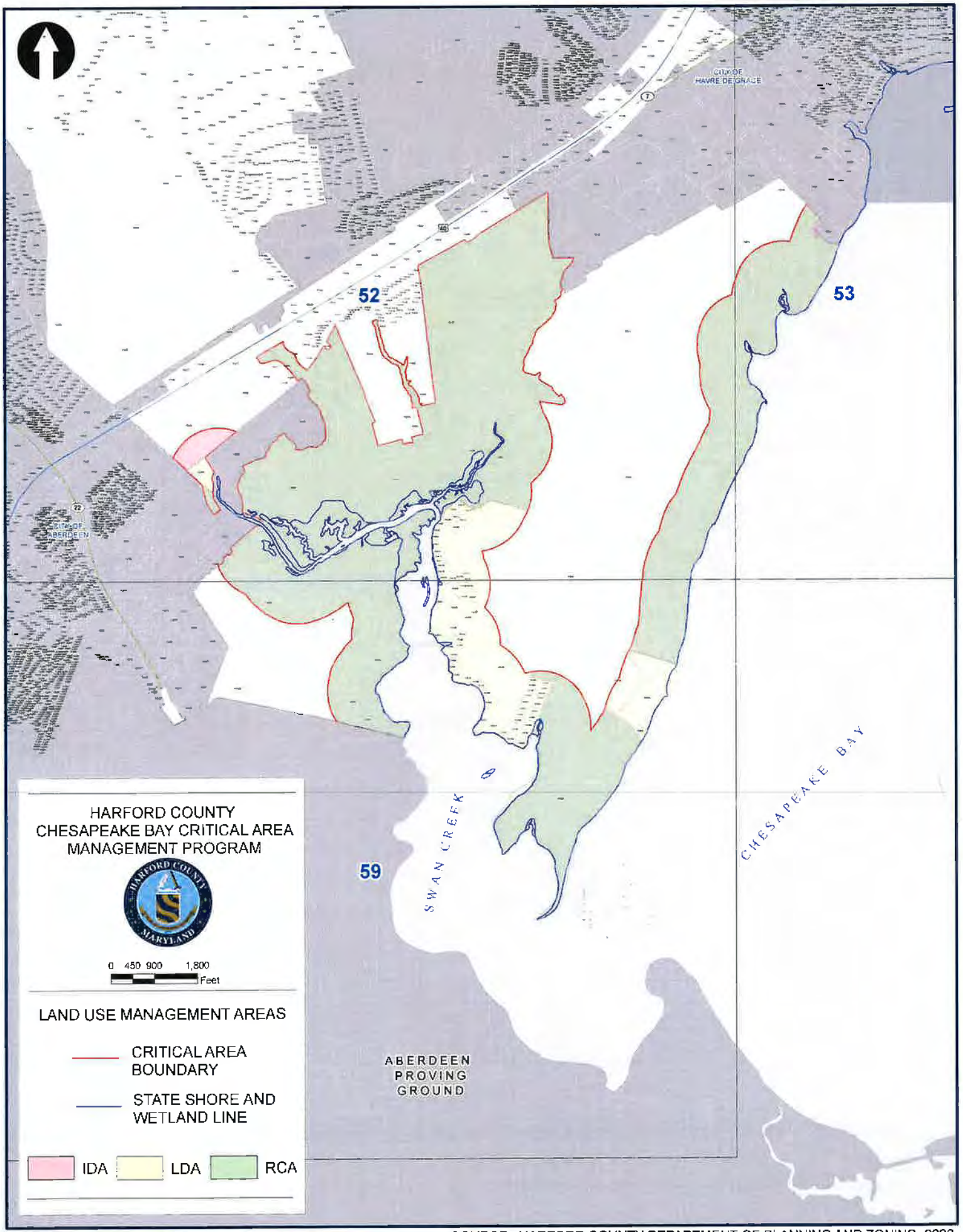
Attachment 3

SOURCE: HARFORD COUNTY DEPARTMENT OF PLANNING AND ZONING, 2023



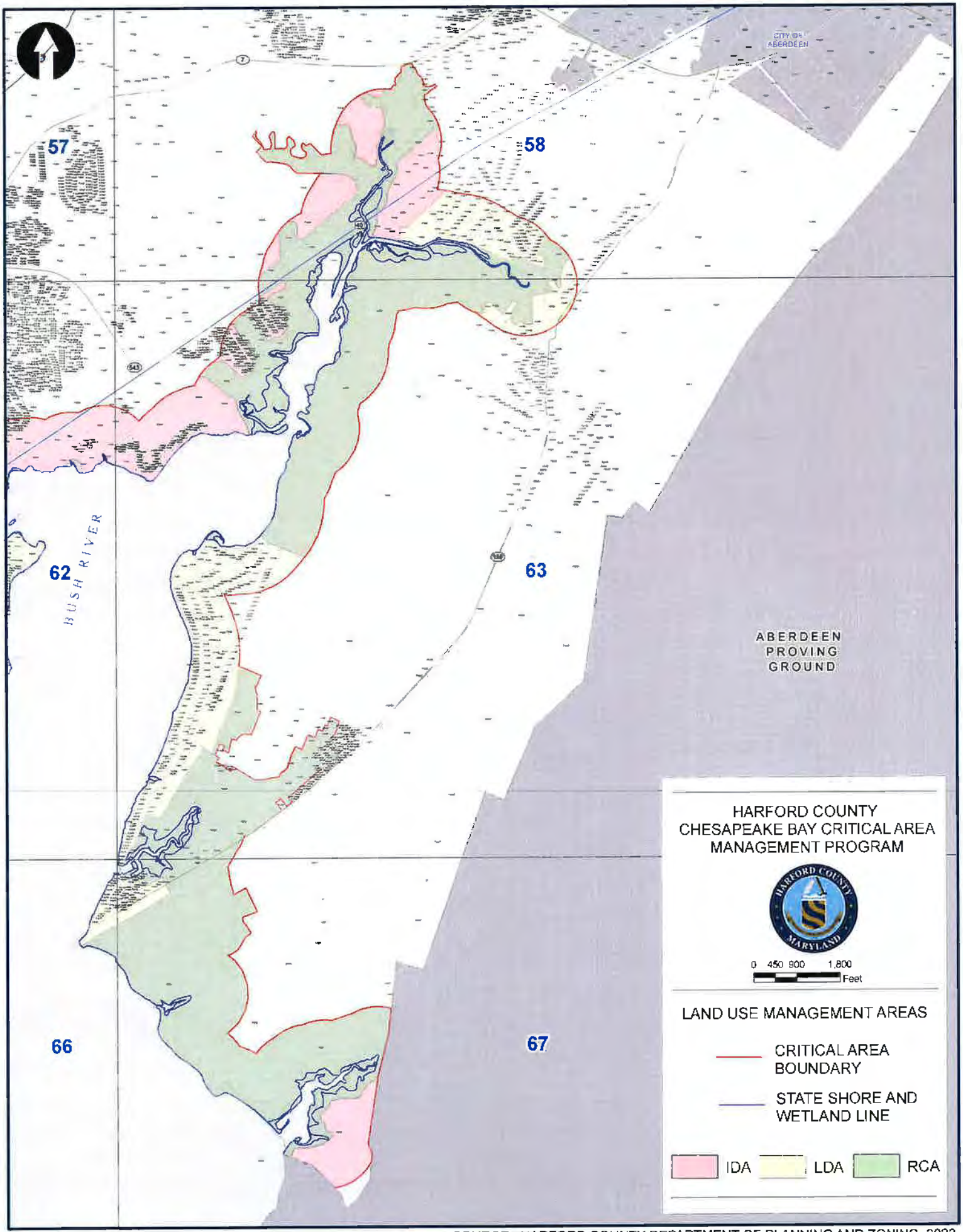
Attachment 3

SOURCE: HARFORD COUNTY DEPARTMENT OF PLANNING AND ZONING, 2023



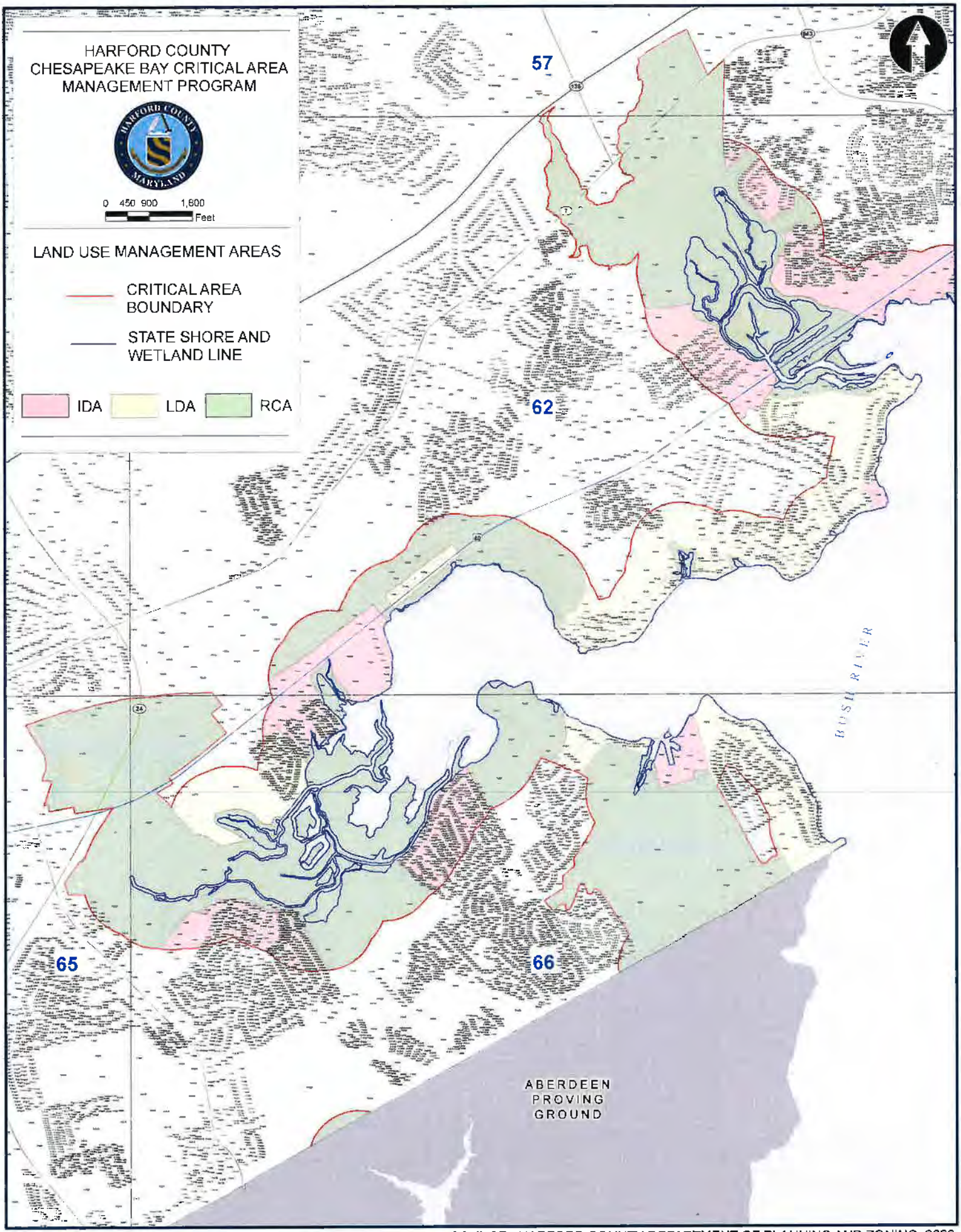
Attachment 3

SOURCE: HARFORD COUNTY DEPARTMENT OF PLANNING AND ZONING, 2023



Attachment 3

SOURCE: HARFORD COUNTY DEPARTMENT OF PLANNING AND ZONING, 2023



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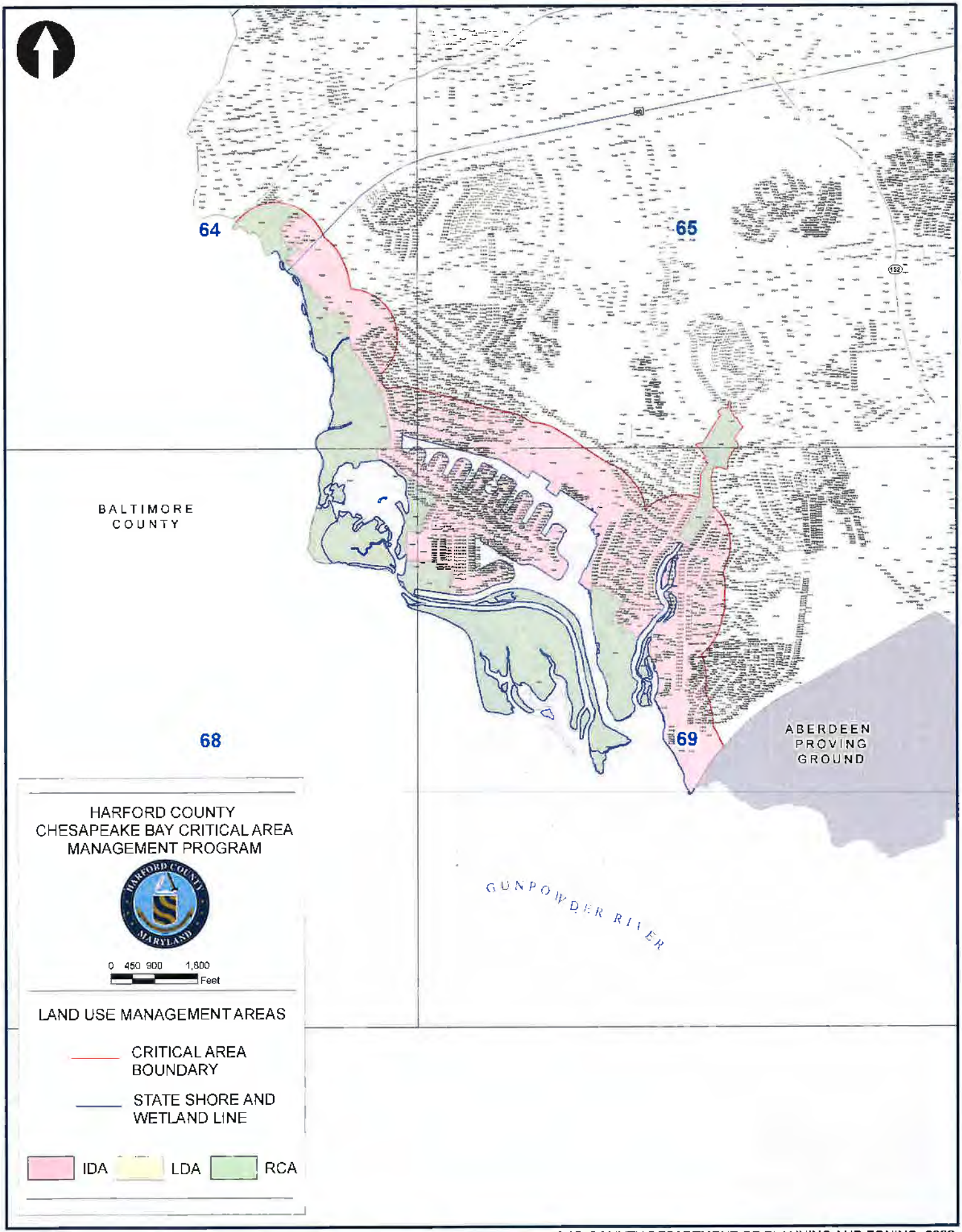
SOURCE: HARFORD COUNTY DEPARTMENT OF PLANNING AND ZONING, 2023



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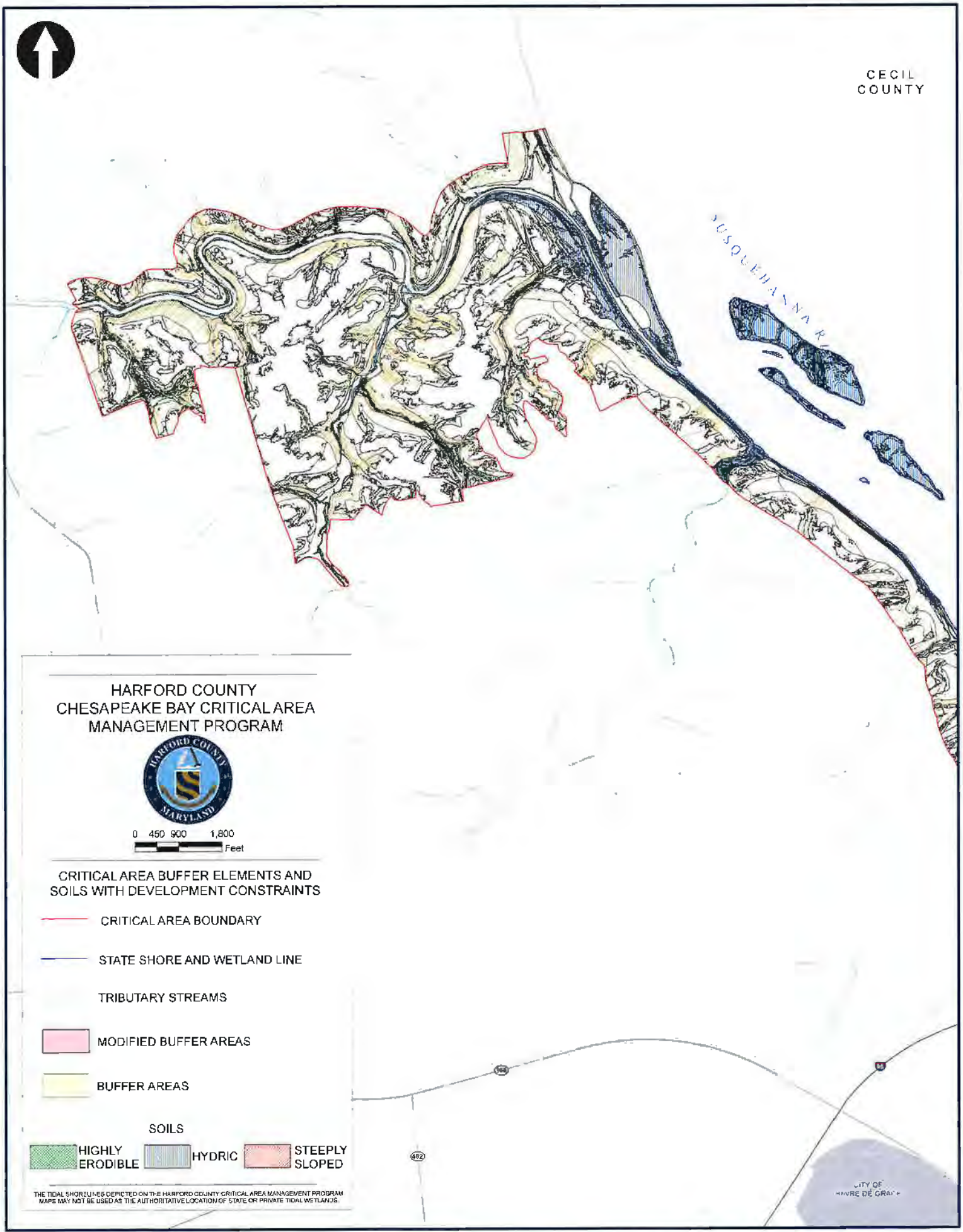
SOURCE: HARFORD COUNTY DEPARTMENT OF PLANNING AND ZONING, 2023



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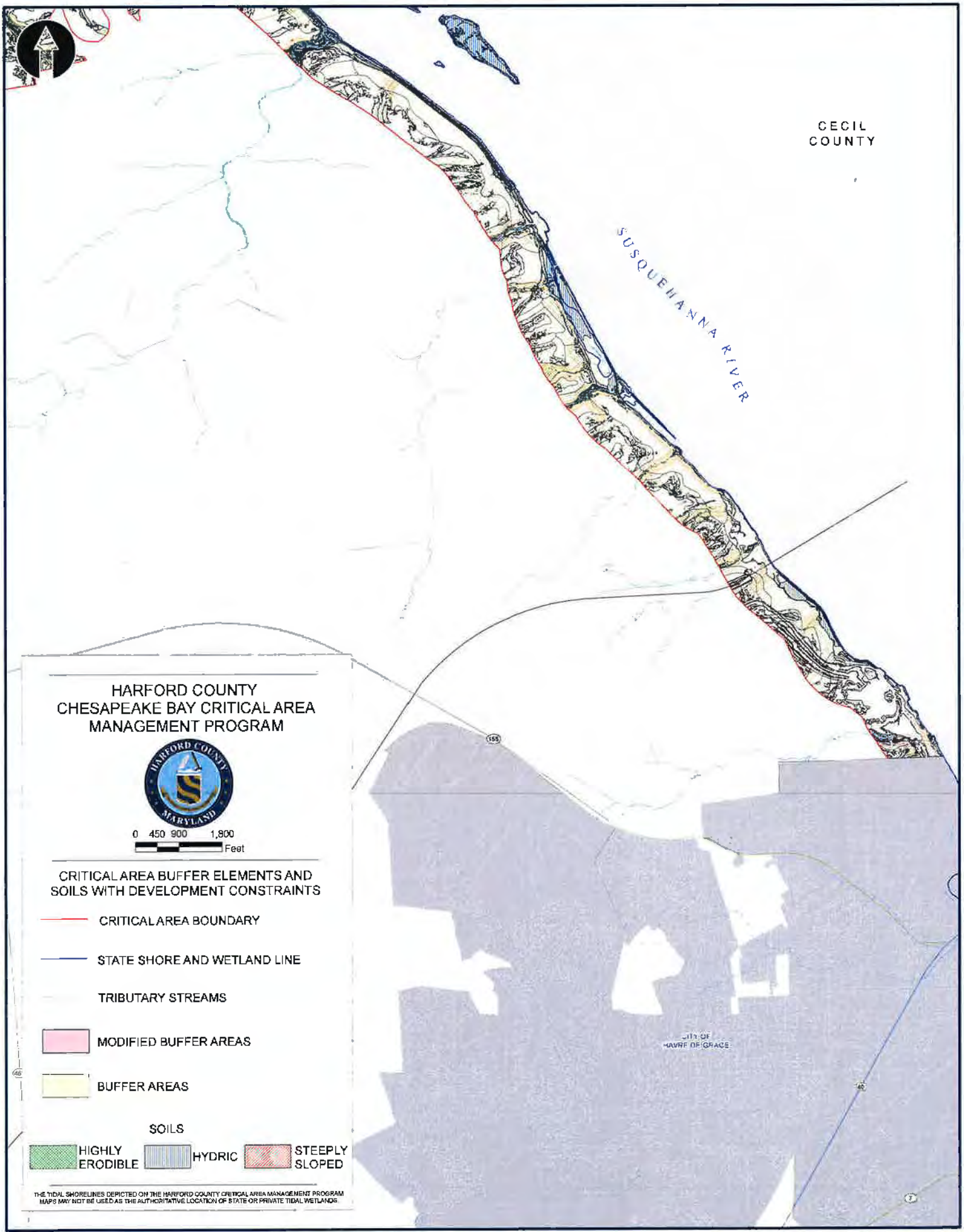
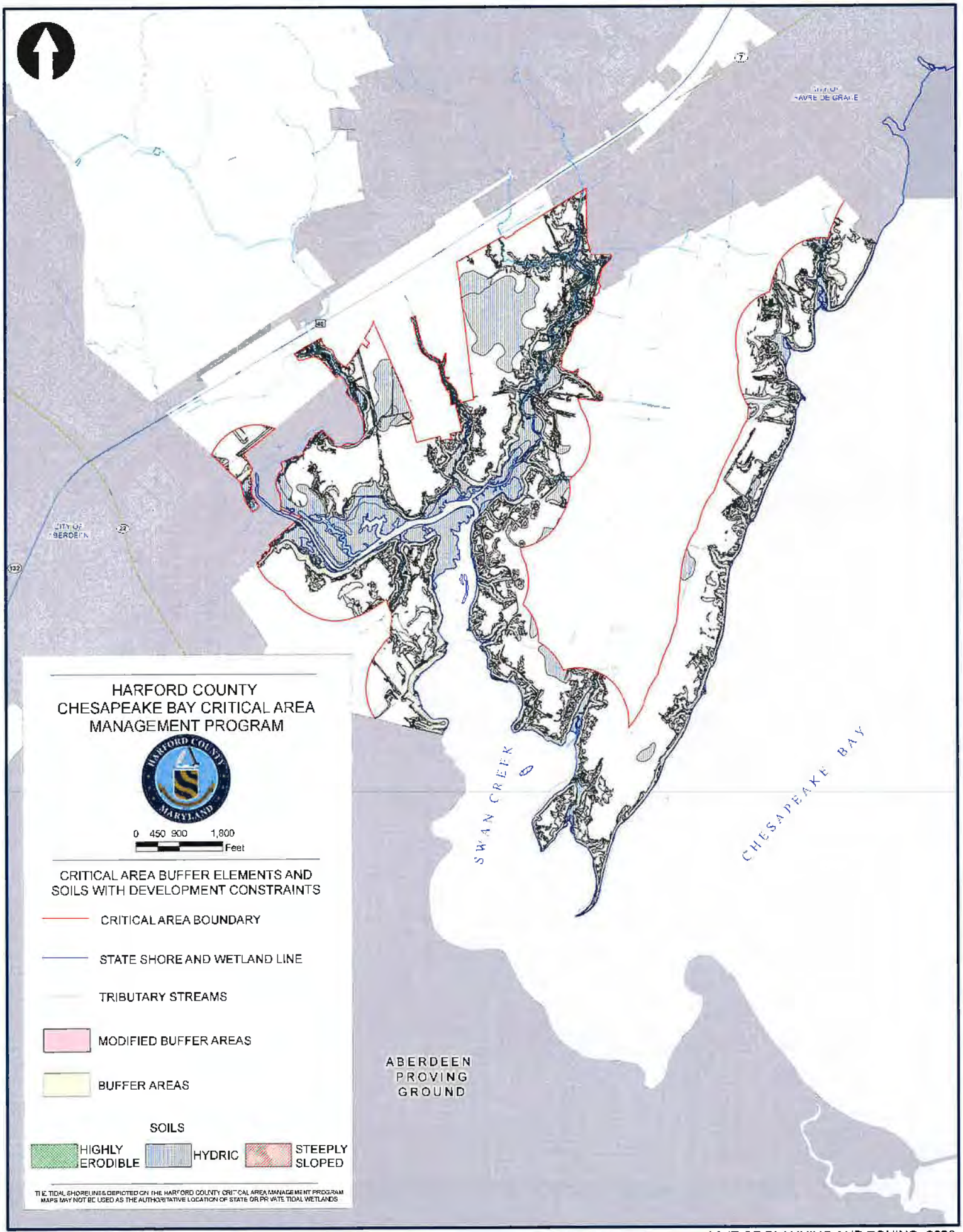


Attachment 3

SOURCE: HARFORD COUNTY DEPARTMENT OF PLANNING AND ZONING, 2023



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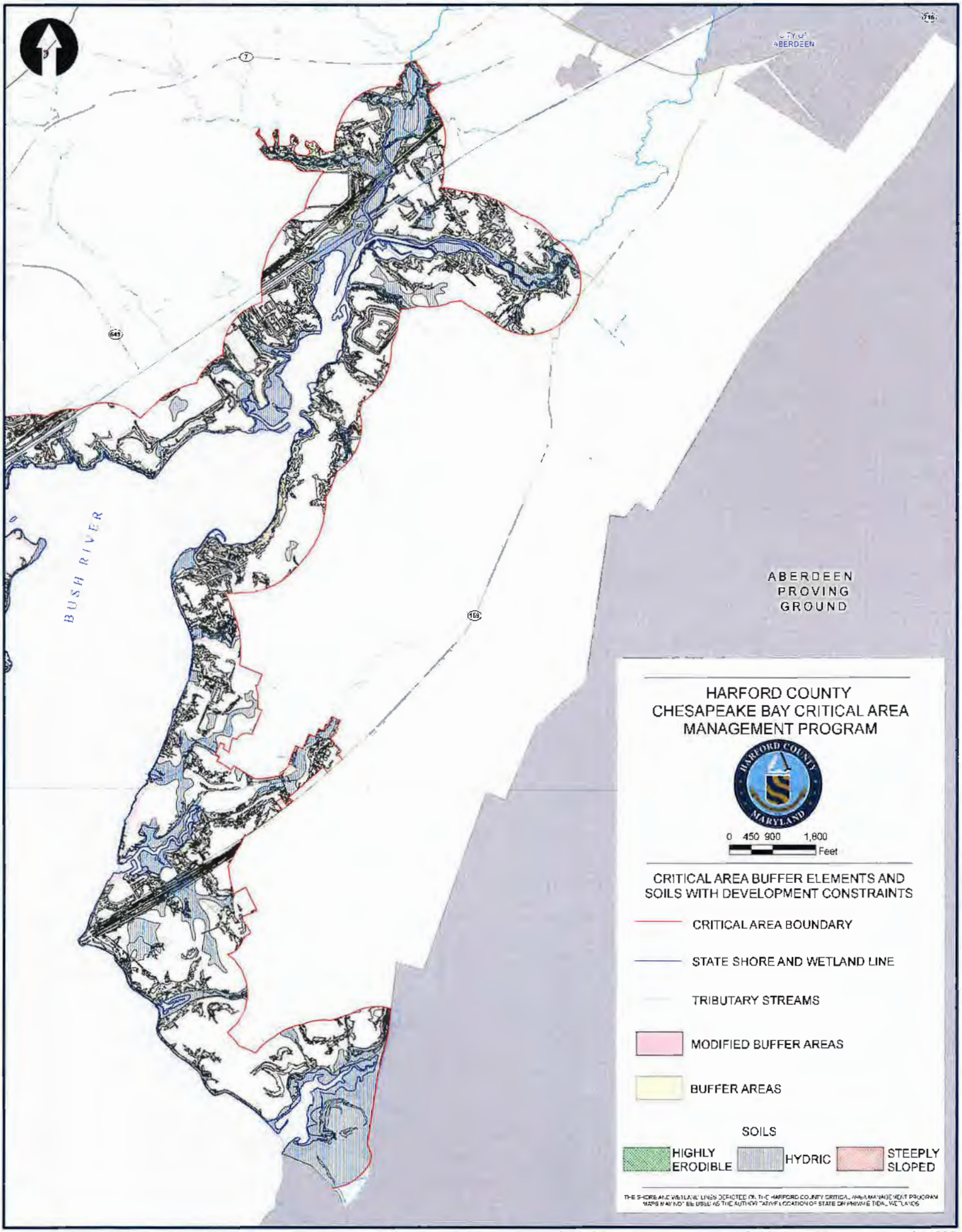

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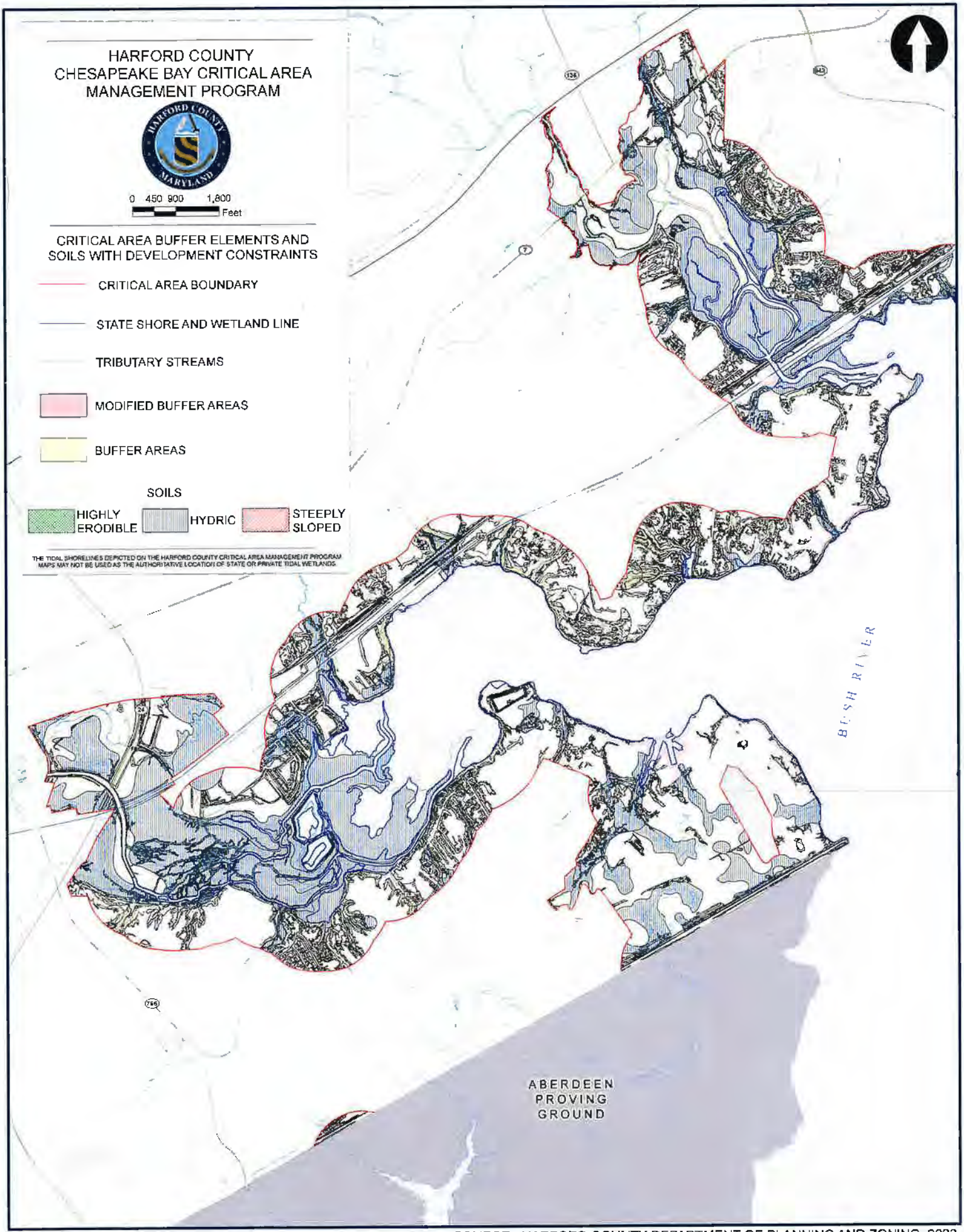

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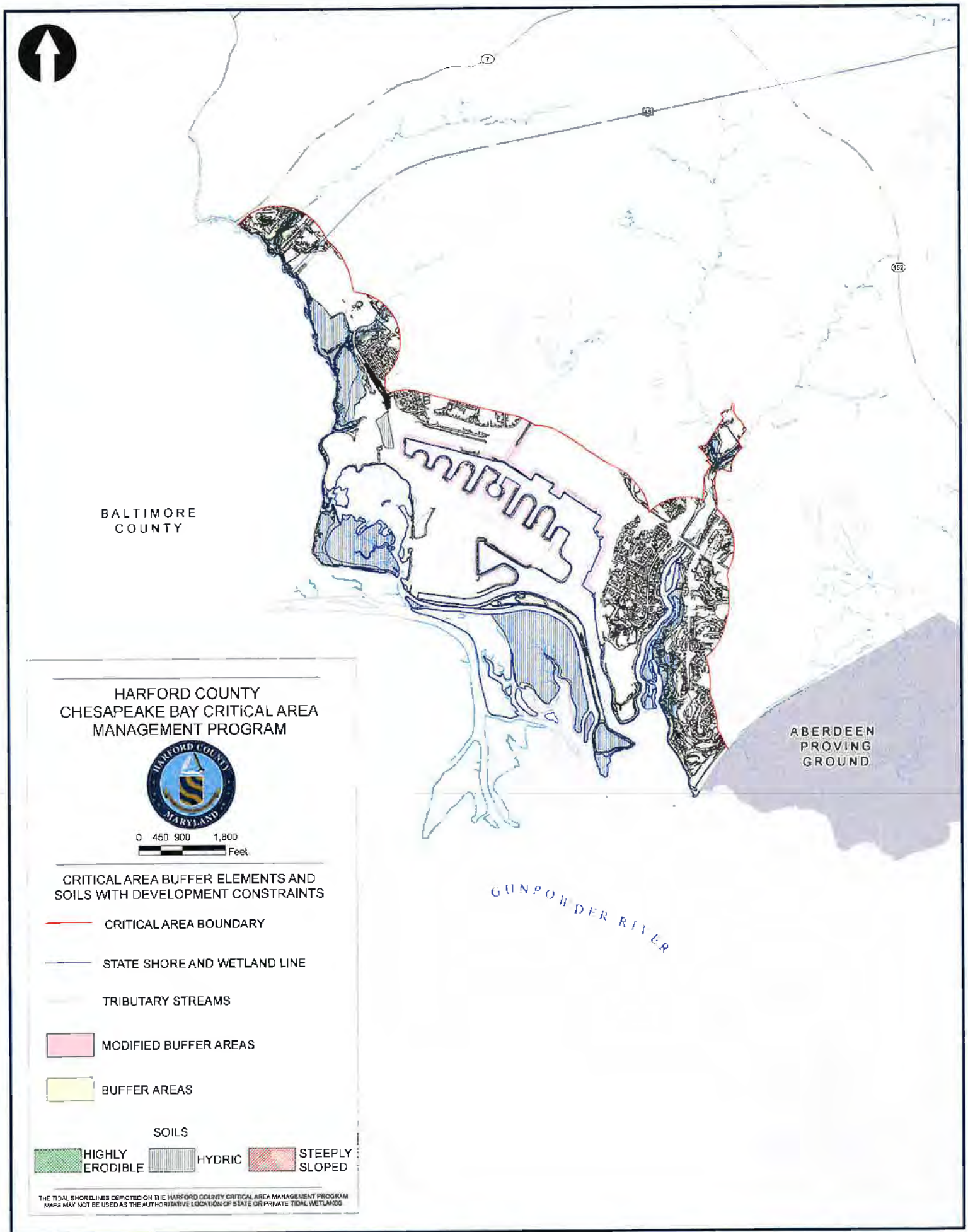

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