

Date: December 5, 2022
To: Stacie Desai, Toole Design
From: Alexis Morris, Senior Environmental Planner, Rossi Group
Re: Greater Baybrook Alliance Shared Use Path
FINAL Environmental Inventory

Medstar Harbor Hospital, in partnership with community non-profits Greater Baybrook Alliance and South Baltimore Gateway Partnership, propose an approximate 4-mile shared use path extension between the Medstar Harbor Hospital and the Nursery Road Light Rail Station. Currently, the Gwynns Falls Trail runs from west Baltimore through the Inner Harbor and south to Middle Branch Park and Cherry Hill Park, ending abruptly just beyond Medstar Harbor Hospital's parking lot. The shared use path extension would pass through Brooklyn and Brooklyn Park providing the missing link between Gwynns Falls Trail in south Baltimore City and the Baltimore/Washington International Thurgood Marshall Airport (BWI) and the Baltimore & Annapolis (B&A) Trail in Anne Arundel County. The proposed shared use path would expand access to transportation, jobs, education, affordable housing and preventative health care. This project would spur economic and community development that would improve the health of the hospital's community-benefit service area by providing safe, accessible routes to a wider range of regional services. *This segment of proposed trail would provide an important link, connecting the Baltimore Greenway with the Anne Arundel Trail Network. It would also serve as an important segment of the East Coast Greenway and September 11 Memorial Trails.*

It is anticipated that future design and construction phases for the shared use path will seek award through the Maryland Department of Transportation Bikeways Grant as well as other state and federal funding opportunities. To be eligible for funding through the Bikeways program, a project must meet one (1) eligibility criteria at a minimum:

- Access to Transit: Project is located within 3 miles of a rail transit station (or major bus transit hub);
- Missing Links: Project provides or enhances bicycle access along missing trail links, as identified in MDOT's statewide trail network vision document, "Maryland Trails: A Greener Way to Go";
- County Priority: Project is identified as a transportation priority in a County's most recent annual priority letter submitted to MDOT;
- Sustainable Community: Project enhances bicycle circulation within, or access to a Maryland Sustainable Community Area;
- Main Streets: Project enhances bicycle circulation within, or access to a designated Maryland Main Street;
- Access to Low Income Area: Project enhances bicycle circulation within, or access to a Census Tract within which 50% or more of householders have incomes below 60% of area median income;

- Access to Points of Interest: Project enhances bicyclist access to a major institution (e.g. university) OR to an important tourist or heritage attraction OR to a central business district (as evidenced by land uses).

As detailed in the “Baybrook Connector Shared Use Path Alternatives Analysis Report,” multiple concept alignments were considered in the development of the preferred alignment. The preferred alignment is the result of the planning and outreach process and was ultimately approved by Greater Baybrook Alliance. The preferred alignment will follow Shenandoah Avenue, Gibbons Avenue, Belle Grove Road, and South Hanover Street. The Annual Average Daily Traffic (AADT) for the measured portions of the concept alignments are included as follows: Belle Grove (southern portion) 12,702, Belle Grove (northern portion) 7,502, South Hanover (segment 1) 7,391, South Hanover (segment 2) 9,100, South Hanover (segment 3) 7,471, South Hanover (segment 4) 16,852.

This memo documents existing environmental conditions, identifies potential impacts, and makes recommendations on consultation and permitting needs based on a review of readily available information for the study area. The information presented in this memo is intended to inform the feasibility of the proposed shared use path in south Baltimore City.

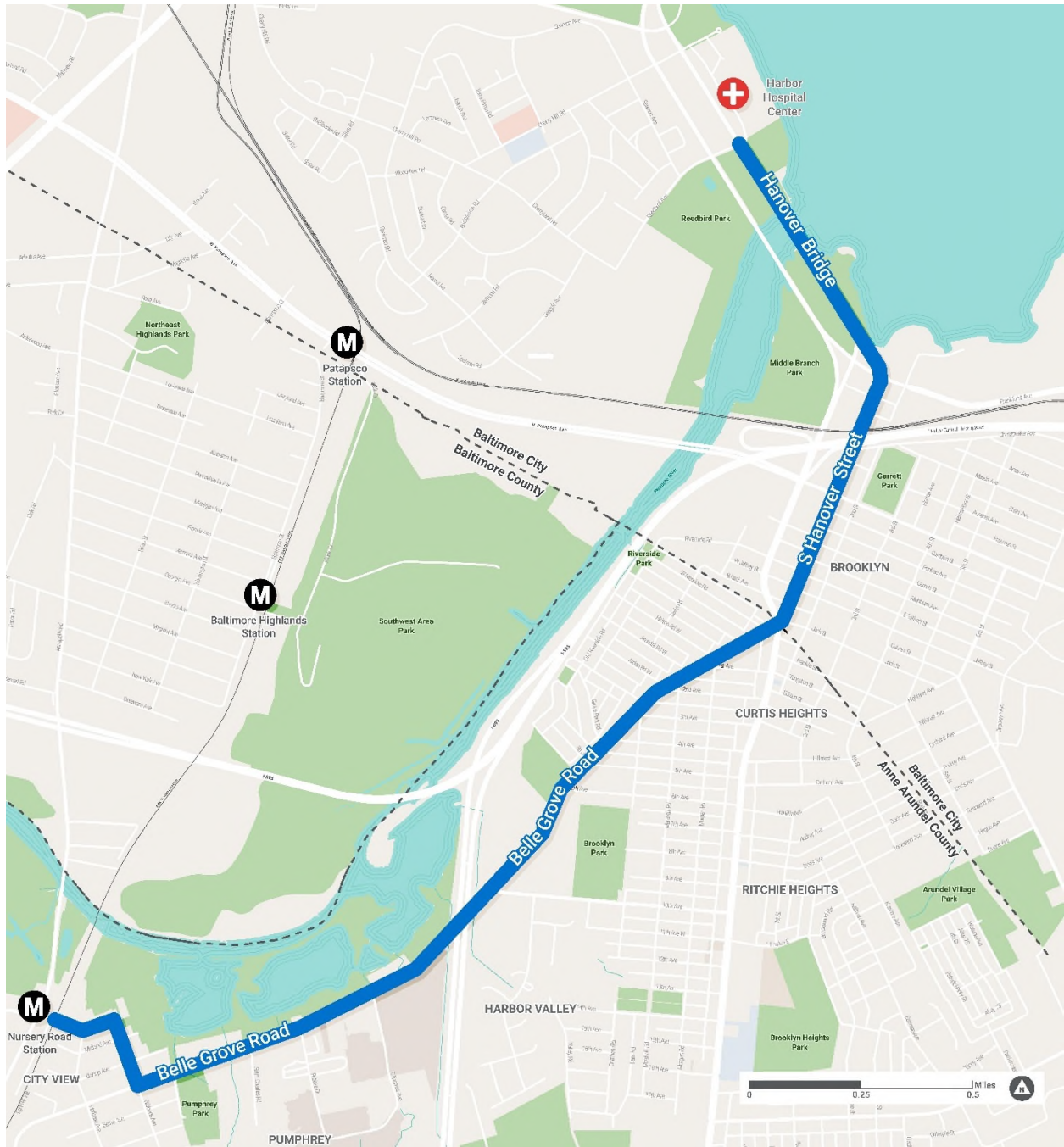
I. STUDY AREA

The study area is approximately four (4) miles in length between the Nursery Road Light Rail Station in Anne Arundel County and the Medstar Harbor Hospital in Baltimore City, Maryland (Figure 1). The study area extends approximately 100 feet to either side of the roadway centerline following Shenandoah Avenue, Gibbons Avenue, Belle Grove Road, and South Hanover Street. The study area was defined by the Greater Baybrook Alliance to include possible connections to the proposed Fitness and Wellness Center in Reedbird Park, the Middle Branch Waterfront, a separately planned and designed Anne Arundel County trail terminating at the Nursery Road Light Rail Station, as well as the proposed Maryland Port Authority bike trail to Masonville Cove. The study area was developed for the purposes of this desktop inventory to ensure the identification of features and resources that may be impacted by the proposed shared use path. It may be modified as the project moves forward.

II. INVENTORY

The desktop inventory of environmental features was conducted by compiling readily available environmental data for the study area. GIS data was reviewed for mapping existing conditions and identifying potential natural, socioeconomic, and cultural resources. Further, data was reviewed to identify potential environmental concerns. This environmental inventory included an analysis to determine additional environmental data needed for the next phase of the project. Resource maps referenced in this memo are found in the appendices.

Figure 1: Preferred Alignment/Study Area Map



A. Natural Resources

The natural resources desktop investigation of mapped information identified site topography, vegetative cover, 100-year floodplain boundaries, non-tidal wetlands, and waterways (**Appendix A: Natural Resource Mapping**). Mapped resources reviewed for this project included:

- The United States Department of Agriculture, Natural Resources Conservation Service (USDA-NRCS) Web Soil Survey (WSS) for Anne Arundel County and Baltimore City, MD
- The United States Geologic Survey (USGS) Topographic mapping
- US Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) GIS data
- USFWS online Information for Planning and Consultation (IPaC) database
- Federal Emergency Management Agency (FEMA) GIS floodplain data & FEMA maps
- MD Department of Natural Resources (DNR) Wetlands and Waters, Forest Interior Dwelling Species (FIDS), Sensitive Species Project Review Area (SSPRA), and Chesapeake Bay Critical Area (CBCA) GIS data

1. Geology, Topography, and Soils

The project study area lies within the Piedmont physiographic province, and topography ranges from approximately 3 to 74 feet above sea level. The USDA-NRCS Web Soil Survey for Anne Arundel County and Baltimore City identified 19 mapped soil units in the study area (**Appendix B: USDA NRCS Soils Report**).

2. Forest Resources and Terrestrial Habitat

Existing tree locations shown on the 30% design plans are from the LIDAR topographic survey base map. The preservation of mature trees was a consideration in this design and was implemented whenever possible. Overall, a total of approximately seven trees are anticipated to be impacted along Belle Grove Road. This design does not anticipate any tree impacts on S. Hanover Street in the Baltimore City section as the proposed bike lane is within existing curbs. Inventories to assess tree height, maturity, and condition should be performed in future phases. Forest and tree impacts in MD require MD DNR Roadside Tree Permit (RTP) or Reforestation Law approval. RTP covers all individual tree and forest impacts less than one acre within existing public road right-of-way (ROW). If forest impacts are greater than or equal to one acre, Reforestation Law would apply.

The study area includes portions within the Chesapeake Bay Critical Area (CBCA) from the Nursery Road Light Rail Station along Belle Grove Road to north of the school; and from I-895 to the northern study area limits. While portions of this area are within Patapsco Stream Valley Park, the majority of this area is designated as intensely developed. MD DNR GIS indicated that there are no Sensitive Species Project Review Areas (SSPRA) within the study area. The SSPRA data layer incorporates various types of regulated areas under the CBCA Criteria and other areas of concern statewide, including: Natural Heritage Areas, Listed Species Sites, Other or Locally Significant Habitat Areas, Colonial Waterbird Sites, Nontidal Wetlands of Special State Concern, and Geographic Areas of Particular Concern. Impacts within the CBCA will require project review and coordination regarding impacts with Anne Arundel County and Baltimore City to determine

appropriate mitigation. Mitigation is anticipated to include at least a 1:1 replacement requirement for street trees. Impacts within the buffer area could require additional mitigation. Additional stormwater, environmental site design, or other requirements may be sought to address the additional or redeveloped impervious area that may result from the project.

FIDS habitat protection in Maryland is mandated under CBCA Law and recommended by DNR outside the CBCA. FIDS habitat is defined as a forest tract that meets either of the following conditions: a) greater than 50 acres in size and containing at least 10 acres of forest interior habitat (forest greater than 300 feet from the nearest forest edge); or b) riparian forests for perennial streams that are, on average, at least 300 feet in total width and greater than 50 acres in total forest area. Aerial mapping confirmed the presence of potential FIDS habitat areas along the Patapsco River; however, the FIDS habitat is outside of any potential limits of disturbance.

3. Threatened and Endangered Species

A search of the USFWS IPaC database for information on federally listed threatened, and endangered species was conducted on January 07, 2022. The USFWS Chesapeake Bay Ecological Field Office (CBFO) listed the endangered the threatened northern long-eared (NLE) Bat (*Myotis septentrionalis*) and the candidate species monarch butterfly (*Danaus plexippus*); however, no critical habitat has been designated within the project area for these species (see **Appendix C: Threatened and Endangered Species Review**). Additional evaluation and consultation with the CBFO would be needed should the proposed improvements require federal NEPA compliance and result in tree clearing greater than or equal to 15 acres.

USFWS IPaC does not include listed state species or species/critical habitats under the sole jurisdiction of NOAA Fisheries. A preliminary investigation of NOAA's website yielded estimated range and critical habitat for sturgeon, which is likely the only potential NOAA Fisheries listed species within the project vicinity. The estimated range of the endangered shortnose sturgeon (*Acipenser brevirostrum*) in the Potomac River extends through the study area; while the endangered Atlantic sturgeon (*Acipenser oxyrinchus*) critical habitat area in the Potomac is located down-river of the project area (**Appendix C**). The proposed improvements would not require any in water work; therefore, further consultation with NOAA is not required.

By letter dated February 17, 2022, MD DNR Wildlife and Heritage Service indicated they have no official records for State or Federal listed, candidate, proposed, or rare plant or animal species within the project area.

The MD DNR Environmental Review Program facilitates self-screening for aquatic resources via a web-based tool. A review of DNR wetlands data, combining state and federal information indicates that there are at least two stream crossings within the study area in addition to the South Hanover Street crossing of the Patapsco River. Each waterbody in the state of Maryland is assigned a use classification. The Patapsco River and its tributaries are designated by the State of Maryland as Use Class I: Water Contact Recreation, and Protection of Nontidal Warmwater Aquatic Life waterways. To protect aquatic species, in-stream work is prohibited in Use I waters during the period March 1 through June 15, inclusive, during any year.

4. Wetlands and Waterways

The study area is located in two watersheds (Baltimore Harbor – 02130903 and Patapsco River L N Br 02130906). In addition to the stream crossings referenced above, the desktop inventory

revealed that there are wetlands mapped within the study area. There are Freshwater Emergent Wetlands (Palustrine) in the vicinity of the Light Rail Nursery Road Station and Shenandoah Avenue. There are Freshwater Forested/Shrub Wetland (Palustrine) along the Northwest side of Belle Grove Road within the boundary of Patapsco Valley State Park and near Belle Grove Elementary School. Unclassified wetlands have also been denoted in Reedbird Park. The delineation of wetlands and waterways is required to quantify impacts of the proposed improvements. A Joint Federal/State Permit Application for the Alteration of Any Floodplain, Waterway, Tidal or Nontidal Wetland in Maryland (JPA) would be required for impact authorization from USACE-Baltimore District and MDE in Maryland.

5. Floodplains

The study area includes portions of the 100-year floodplain for the Patapsco River, according to the FEMA GIS floodplain data. Impacts to the 100-year floodplain would be addressed in the previously referenced JPA.

B. Socioeconomic Resources

1. Land Use and Zoning

Existing land use and zoning data was collected from Anne Arundel County, Baltimore City GIS and Mapping Services. Additionally, comprehensive planning documents were reviewed including: *Anne Arundel County Comprehensive Plan - Plan2040* (effective June 27, 2021), *Brooklyn and Curtis Bay (SNAP) Master Plan* (adopted 2005); *South Baltimore Gateway Master Plan* (adopted October 29, 2015); and *2040 Maryland Transportation Plan* (February 2018).

The *Brooklyn and Curtis Bay (SNAP) Master Plan* acknowledges the South Hanover Street corridor as a community gateway and commercial center, promoting neighborhood friendly development to include wide sidewalks and planting areas. *South Baltimore Gateway Master Plan* recommend, completion and the potential expansion of the Gwynns Falls Trail, with further access improvements to include the addition of bike and pedestrian lanes on the Hanover Street Bridge.

The properties within a 100 ft buffer of the preferred alignment include open space, residential, commercial, industrial, and hospital lands. Starting from the south, the proposed shared use path would follow Shenandoah and Gibbons Avenues in Anne Arundel County in an area that is zoned R-5 Residential. The main leg of the shared use path (Belle Grove portion) begins in Anne Arundel R-5 Residential as well, then it crosses over a portion of Open Space before returning to the R-5 zoned district. As the trail proceeds, it is flanked to the north by Open Space and Commercial (C-3 and C-4) properties. It is flanked by Light Industrial and Commercial Highway (C-4) uses to the south before returning to Residential (R-5 and R-15) zoned uses. The Belle Grove route ends in a Commercial and Light Industrial zoned area before continuing across the intersection of Belle Grove Road, Ritchie Highway, Potee Street and South Hanover Street to South Hanover Street; this also marks the boundary between Anne Arundel County and Baltimore City. The route follows South Hanover Street through zones that are Commercial (C-2) and Industrial (I), and adjacent to Industrial (I-2) zoning before traversing the same Open Space and ending at the Medstar Campus.

Shenandoah and Gibbons Avenues are narrow residential streets, unstriped with area for one lane in each direction. Belle Grove Road has one lane in each direction with a separate parking lane on the south side and a shared-use path on the north side (wide ROW). Hanover Street is

one lane in each direction, unstriped with on-street parking (there may be constricted ROW in this area). Belle Grove Road and Hanover Street are portions of the East Coast Greenway, a planned 3,000-mile shared use route that will extend from Maine to Florida.

The project team compiled the property mosaic based on existing records. Based on this mosaic, approximately four (4) parcels could require temporary construction easements and 13 parcels could require ROW acquisition along Belle Grove Road, in Anne Arundel County. The 30% design through S. Hanover Street in Baltimore City does not anticipate any ROW acquisitions. It shall be noted that existing ROW lines in some areas are within existing sidewalk and or roadway pavement. Boundary surveys need to be conducted in a future phase to determine more accurate ROW lines, acquisitions, and easements.

The project team also reviewed existing parking as part of the planning task. Based on this analysis, people who live, work, or spend time in the project area use a mix of on-street and off-street parking. Belle Grove Road has portions of roadway with wider shoulders, where residents park, despite not being signed as parking. This parking was a consideration in our design and measures were taken to preserve this space where possible. Along S. Hanover Street parallel parking exists along both sides of the street. This 30% design proposes to eliminate parking on the northbound side of S. Hanover Street to accommodate the separated two-way bike lane. The parking inventory and analysis confirmed that there is adequate parking on side streets and lots along S. Hanover Street.

Based on LIDAR topographic surveys conducted by the project team, a total of approximately 35 utility and/or light poles and approximately 7 mailboxes would be impacted along Belle Grove Road. Where possible the width of the proposed shared use path would be reduced to avoid impacting poles at the paths edge. Appropriate pavement markings and/or object marker signage would be determined in the next phase. Under the current design, there would be no utility impacts on S. Hanover Street in the Baltimore City section as the proposed bike lane is within existing curbs. Utility coordination would be needed in the next phase of the project to gain an understanding of utility owners and understand necessary agreements. Surveyed property boundaries would determine which poles are within existing ROW.

Maryland's Sustainable Communities are regions across the state where governments, business and communities coordinate investments to achieve sustainable growth, good jobs and thriving neighborhoods. Brooklyn Park (Anne Arundel County) and Brooklyn (Baltimore City) are designated as sustainable communities, within the study area. Further, the study area is located within a state designated Priority Funding Area. Priority Funding Areas are existing communities and places where local governments want state investment to support future growth.

An array of travel choices is key to a community's sustainable future. Historically, marginalized communities and people facing the greatest mobility barriers have the most to gain from improved access and should be centered in the planning and design process. Shared use paths serve as important low-stress links in local and regional transportation networks. They have the potential to deliver powerful benefits to communities - providing people of every age, ability and socioeconomic background safe and inexpensive spaces for outdoor physical activity, commuting and recreation. Shared use paths can be used comfortably by a diverse range of individuals, from children on bikes to seniors walking because the environment is safe, low-stress, and comfortable. Shared use paths can serve as economic catalysts - opening up opportunities for

outdoor tourism and small business development, and they can also provide critical “social infrastructure” - public spaces where people can safely meet, interact and build relationships. Key to maximizing the impact of shared use paths is ensuring every stakeholder in a community is a part of the development process and will benefit from their use. Shared use paths also provide access to open spaces, natural areas, and historical or cultural resources.

2. Community Facilities

Public and private community facilities provide services to residents and businesses within a community. Community facilities include: educational, religious, health care, emergency, transportation, parks and recreation, libraries, post office, etc. Anne Arundel County, Baltimore City GIS data and Google Maps were reviewed to identify community facilities within the study area as described in **Table 1** and shown in **Appendix D: Community Facilities**. The potential for the project to impact community facilities would require further analysis.

In addition to impacts within the CBCA, the project may result in impacts to Patapsco State Park, under the jurisdiction of Maryland DNR, and Pumphrey Park, under the jurisdiction of Anny Arundel County. The scope of this evaluation included the preparation of an existing property mosaic based on existing records/deeds. There are locations where the existing sidewalk is outside of the ROW and on park property in many areas. Detailed ROW survey is required to fully assess the extent of impacts. If federal funds are used to move this project forward these areas will also be subject to review under Section 4(f). Section 4(f) of the US Department of Transportation (DOT) Act of 1966 stipulates that Federal Highway Administration (FHWA) and other DOT agencies cannot approve the use of land from publicly-owned public parks, recreational areas, wildlife and waterfowl refuges, or public and private historical sites unless the following conditions apply:

1. There is no feasible and prudent avoidance alternative to the use of land; and the action includes all possible planning to minimize harm to the property resulting from such use;
OR
2. The Administration determines that the use of the property will have a *de minimis* impact.

A Section 4(f) Evaluation would be required to evaluate the use of publicly-owned parks, recreational areas, wildlife and waterfowl refuges, or public and private historical sites.

Table 1: Community Facilities

Name	Address
Middle Branch Park	<i>Mailing Address:</i> 3301 Waterview Ave, Baltimore, MD 21230
Garrett Park	<i>Mailing Address:</i> 3560 Third Street Baltimore, MD 21225
Maree Garnett Farring Elementary	300 Pontiac Ave, Baltimore, MD 21225

Name	Address
Reedbird Park	3100 South Hanover Street Baltimore, MD 21225
Riverside Park	<i>Mailing Address:</i> Riverside Neighborhood Association 1501 Covington Street Baltimore, MD 21230
Belle Grove Elementary School	4502 Belle Grove Road Baltimore, MD 21225
Brooklyn Park Elementary School	200 14 th Ave, Baltimore, MD 21225
Brooklyn Park Health Services	300 Hammonds Lane Baltimore, MD, 21225
Brooklyn Park Middle School	200 Hammonds Lane Baltimore, MD 21225
Pumphrey Park	5757 Belle Grove Road Baltimore, MD 21225
Community Baptist Church	5912 Belle Grove Road Baltimore, MD 21225
Nursery Road Light Rail Station	6825 Baltimore Annapolis Blvd, Linthicum Heights, MD 21090
Harbor Hospital Center	301 S Hanover Road Baltimore, MD 21225
Patapsco Valley State Park	8020 Baltimore National Pike Ellicott City, MD 21043

3. Population and Demographics

Eight US Census block groups overlap portions of the study area, four in Baltimore City and four in Anne Arundel County. Population and demographic characteristics from the US Census, ACS Five-Year Estimates, 2012-2016 for individual block groups and the counties are presented in **Table 2**.

Should a federal funding source be identified for the implementation of the proposed improvements, property owners affected by displacement would receive relocation assistance in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, revised June 10, 2005 as amended, and Sections 12-112 and Subtitle 2, Sections 12-201 to 12-212, of the Real Property Article of the Annotated Code of Maryland. The project shall not proceed into any phase that will cause the relocation of any persons or proceed with any construction project until it has furnished assurances that all displaced persons would be

satisfactorily relocated to comparable decent, safe, and sanitary housing within their financial means, or that such housing is in place and has been made available to the displaced person. Payments for cost of moving are also provided.

Table 2: Population and Demographic Characteristics

Geography	Total Population (#)	American Indian and Alaska Native Alone (#)	Asian Alone (#)	Black or African American Alone (#)	Native Hawaiian and Other Pacific Islander Alone (#)	White Alone (#)	Some Other Race Alone and Two or More Races (#)	Total Minority Race (%)	Hispanic or Latino, Regardless of Race # (%)	Total Minority Race and/or Ethnicity Population (%) ¹
Block Group 240037502012	1,872	18	24	746	0	678	406	64%	344 (18%)	82.16%
Block Group 240037502041	2,405	18	90	485	1	1,503	308	38%	243 (10%)	47.61%
Block Group 240037501021	1,851	17	67	354	0	1,023	390	45%	320 (17%)	62.02%
Block Group 240037501022	902	12	16	187	0	535	152	41%	126 (14%)	54.66%
Anne Arundel County, MD	588,261	2,354	25,504	104,473	449	377,634	77,847	36%	56,796 (11%)	46.35%
Block Group 245102504013	1,233	29	50	195	1	341	617	72%	643 (52%)	124.49%
Block Group 245102504011	1,531	8	28	482	0	597	416	61%	352 (23%)	84.00%
Block Group 245102506001	23	0	0	1	0	18	4	22%	7 (30%)	52.17%
Block Group 245102502031	796	0	8	706	0	39	43	95%	26 (3%)	98.37%
Baltimore City, MD	585,708	2,312	21,210	338,478	186	163,026	60,496	72%	45,927 (8%)	80.01%
Maryland	6,177,224	0.5%	6.8%	29.5%	0.1%	48.7%	14.5%	51%	12%	63.20%

¹Total Minority Race and/or Ethnicity Population is the sum of persons self-identifying as Black or African American Alone, Hispanic or Latino (regardless of race), Asian American Alone, American Indian and Alaskan Native Alone, Native Hawaiian or other Pacific Islander Alone, Some Other Race Alone, and two or more races.

Source: 2020 US Census, August 25, 2021 Data Release

Environmental justice (EJ) is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Title VI of the Civil Rights Act of 1964 states that “no person in the US shall, on the ground of race, color, national origin, sex, age or disability, be excluded from participation in, be denied the benefits of,

or be subjected to discrimination under any program or activity receiving Federal financial assistance". Executive Order 12898 – Federal Actions to Address Environmental Justice in Minority and Low-Income Populations was signed in 1994. Executive Order 12898 requires all Federal agencies to “develop an agency-wide environmental justice strategy and identifies and addresses disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations.” The US DOT and FHWA policies on EJ are included in US DOT Order 5610.2(a), *Final DOT Environmental Justice Order* (US DOT 2012) and in FHWA Order 6640.23A *Actions to Address Environmental Justice in Minority Populations and Low-Income Populations* (FHWA 2012). FHWA’s Title VI program is outlined in 23 CFR 200.

- *Minority Populations* - Any readily identifiable groups of minority persons who live in geographic proximity, and if circumstances warrant, geographically dispersed/transient persons (such as migrant workers or Native Americans) who would be similarly affected by a proposed FHWA program, policy or activity (refer to USDOT Order 5610.2(a) and FHWA Order 6640.23A).
- *Low-Income Population* - Any readily identifiable group of low-income persons who live in geographic proximity, and, if circumstances warrant, geographically dispersed/transient persons (such as migrant workers or Native Americans) who would be similarly affected by a proposed USDOT program, policy, or activity (refer to USDOT Order 5610.2 and FHWA Order 6640.23A).

Per the Council on Environmental Quality (CEQ) Environmental Guidance Under NEPA (1997), a minority population is present when: (A) the minority race/ethnicity population of the affected area exceeds 50 percent or (B) the minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis. Based on data collected from the American Community Survey (ACS) Five-Year Estimates (2015-2019), each of the study area block groups meets the population threshold for being classified as a minority population.

Additionally, 2019 American Community Survey data was sourced to determine the median household income and household size for the three US Census block groups that overlap portions of the study area. The US Department of Health and Human Services (HHS) calculates Poverty Guidelines based on a national average income. The HHS Poverty Guidelines provide a threshold median household income for low-income household identification by size of household. Using the HHS 2019 Poverty Guidelines the income threshold for a three-person household, a block group would have a median income of \$21,330 or less to be considered a low-income population. Each of the study area block groups has an average household size greater than two. None of the study area block groups has a median household income at or equal to \$23,030. In Baltimore City, the US Department of Housing and Urban Development calculates the Area Median Income for a family of four as \$104,000.

Opportunity Zones is a ten-year program that offers a tax incentive to encourage investors to re-invest their unrealized capital gains into Opportunity Funds that are dedicated to investing into low-income or under-served urban and rural communities nationwide. This community development program was established by Congress in the Tax Cuts and Jobs Act of 2017 and is

administered by the U.S. Treasury. Of the 149 designated Opportunity Zones in Maryland, four are intersected by the study area. These include census tracts 7502.01 (Brooklyn Park), 7501.02 (Brooklyn Park), 2504.01 (Brooklyn), and 2506.03 (Cherry Hill).

C. Cultural Resources

The team reviewed National Register of Historic Places (NRHP) nominations and MD Inventory of Historic Property (MIHP) forms available through MD DNRs MERLIN database. The preliminary investigation of cultural resources was limited to the study area. Within the study area, the MIHP identifies Governor Ritchie Highway, Annapolis Boulevard (MIHP AA-4) as State inventoried significant resource as Maryland's first dual highway and the first State Road built with the mandate to preserve natural and scenic beauty. However, further investigation indicates that only the portions of this resource retaining the roadway's original character are eligible.

Additional desktop review and potentially field research by a cultural resources' specialist would be required to identify the potential for archaeological resources within the study area.

The proposed project would be subject to the requirements of Section 106 of the National Historic Preservation Act of 1966 (NHPA). These requirements include consultation with the MD Historical Trust (MHT) to delineate an Area of Potential Effects (APE), identify and evaluate additional standing structures greater than fifty years of age or archeological resources for NRHP eligibility, and assess potential impacts to historic properties.

D. Hazardous Materials

The hazardous materials review included an initial identification of potential environmental concerns (PECs) at sites within or adjacent to the designated study area using readily available online data and a reconnaissance of current site conditions. The database listings identified 11 sites with environmentally significant records or observations that could be considered potential environmental concerns (PECs). These are described in **Error! Reference source not found..**

Table 3: Potential Environmental Concerns

ID	Resource Name/ Address	Database Listings/ Other Notes
1	Knipp & Co 3401-05 Hanover Street Baltimore, MD 21225-1612	https://ofmpub.epa.gov/frs_public2/fii_query_detail.disp_program_facility?p_registry_id=110011744880
2	Brooklyn M & M Body Shop 3426 Hanover Street, Baltimore, MD 21225-1613	https://ofmpub.epa.gov/frs_public2/fii_query_detail.disp_program_facility?p_registry_id=110007312283
3	Dentocide Chemical Company 3437 Hanover Street, South Baltimore, MD 21225-1612	https://ofmpub.epa.gov/frs_public2/fii_query_detail.disp_program_facility?p_registry_id=110019870022
4	O'Brady's 3432 Hanover Street, South Baltimore, MD 21225-1613	https://ofmpub.epa.gov/frs_public2/fii_query_detail.disp_program_facility?p_registry_id=110007315173

ID	Resource Name/ Address	Database Listings/ Other Notes
5	Wilson Auto Body 3539 Hanover Street, South Baltimore, MD 21225-1746	https://ofmpub.epa.gov/frs_public2/fii_query_detail.disp_program_facility?p_registry_id=110007260481
6	Autobahn Motors 3704 Hanover Street, South Baltimore, MD 21225	https://ofmpub.epa.gov/frs_public2/fii_query_detail.disp_program_facility?p_registry_id=110007260506
7	City of Baltimore Reproduction DIV (Corner of Calvert and Hanover Streets) 111 Calvert Street, North Baltimore, MD 21202-1904	https://ofmpub.epa.gov/frs_public2/fii_query_detail.disp_program_facility?p_registry_id=110001799554
8	Neenan Business Forms Inc. 3917 Hanover Street, South Baltimore, 21225	https://ofmpub.epa.gov/frs_public2/fii_query_detail.disp_program_facility?p_registry_id=110007312318
9	Morlock Petroleum Equipment Service Inc. 4700 Belle Grove Road, Bldg 16 Baltimore, MD 21225-2940	(Inactive) https://ofmpub.epa.gov/frs_public2/fii_query_detail.disp_program_facility?p_registry_id=110008425766
10	Bill Smith's Body Shop 4701 Belle Grove Road, Brooklyn Park, MD 21225	https://ofmpub.epa.gov/frs_public2/fii_query_detail.disp_program_facility?p_registry_id=110001837415
11	Matlack Inc., 4801 Belle Grove Road, Brooklyn, MD 21225-2903	(Inactive) https://ofmpub.epa.gov/frs_public2/fii_query_detail.disp_program_facility?p_registry_id=110001769569
12	Joseph Hock Jr., Inc. 5501 Belle Grove Road Brooklyn, MD 21225-3304	https://ofmpub.epa.gov/frs_public2/fii_query_dtl.disp_program_facility
13	VSI Technologies Inc. 5633 Belle Grove Road, Baltimore, MD 21225	https://ofmpub.epa.gov/frs_public2/fii_query_dtl.disp_program_facility

On February 25, 2022, reported environmental data was obtained from Environmental Data Resources, Inc. (EDR). The regulatory data identified public records for environmental storage, handling, transport, shipping and release. Eleven closed MD Oil Control Program Cases (OPCASES) were identified within 1/8-mile of the study area. One closed case of a historic leaking underground storage tank (HIST LUST) was documented within 1/8-mile of the study area. Six underground storage tanks within 1/8-mile of the study area are registered as permanently out of use. One aboveground storage tank is permitted within 1/8-mile of the study area.

E. Air Quality and Noise Analysis

A detailed inventory of current air quality conditions was not conducted with this environmental inventory. However, in accordance with 40 CFR 93.126, bicycle and pedestrian facilities are projects exempt from the requirement to determine conformity with air quality laws. Such projects may proceed even in the absence of a conforming Statewide Transportation Improvement Program (STIP).

Pursuant to 23 CFR 772 and in accordance with the Maryland Department of Transportation (MDOT) Noise Policy (2020), and Highway Noise Abatement Planning and Engineering Guidelines (2020) noise analysis would only be required should roadway and bridge facilities be constructed along a new alignment.

III. SUMMARY OF PUBLIC INVOLVEMENT

Public outreach and involvement were an invaluable component in the development of 30% Design for this shared use path. Public outreach began in the Fall of 2021, where the project team attended multiple pop-up events in Baltimore City and Anne Arundel County:

- Arts in the Park Festival, Chesapeake Arts Center, October 2, 2021
- Curtis Bay Block Party, Curtis Bay Park, October 2, 2021
- Pop-Up Locations on November 17, 2021
- Outside Michelangelo's Pizza, South Hanover Street and East Patapsco Avenue
- Outside Clark's Fishing Store, South Hanover Street and West Garrett Street
- Brooklyn Park Senior Center
- Brooklyn Branch Library/Garrett Park
- Music on Main Street, GBA Offices, November 19, 2021

Additionally, the project team provided an initial online survey which ran from November 2021 to January 2022 that focused on travel habits and user experience. We received 36 responses. A second survey which ran from December 2021 to January 2022 focused on route options and user preferences. We received approximately 150 responses. All events and surveys were promoted on GBA's social media and newsletters.

Following the development of 10% Concept Design the project team conducted a stakeholder presentation to MDOT/SHA, Baltimore City, and Anne Arundel County, held on March 29, 2022. Virtual public meetings were held on May 11, 2022 and May 25, 2022. Events were promoted on GBA's social media and newsletters. All meetings were well-attended, and we received a lot of valuable feedback. The team also presented the project at another round of pop-up events in April and May 2022:

- City of Refuge, Baltimore City, food distribution – set up a table, April 28, 2022
- Earth Day Event, Baltimore City, April 28, 2022
- Belle Grove Elementary Family Event, Anne Arundel County, April 28, 2022
- East Patapsco Ave Meeting, Enoch Pratt Library, set up outside, May 5, 2022
- Chesapeake Arts Center Open House, Anne Arundel County, May 14, 2022

Following the development of 30% Design the project team held a virtual public meeting held on

October 26, 2022, with more than 30 attendees (the exact number was not recorded). This was followed by an in-person public meeting held at Medstar Harbor Hospital in Baltimore City on November 2, 2022, with 17 attendees. This meeting included a presentation by the design team followed by an open house component with six display boards depicting the proposed design, where attendees could review the 30 % design and ask questions of the project team. A second 30% Design public meeting was held at Chesapeake Arts Center in Anne Arundel County on November 10, 2022 and attended by 29 individuals. This meeting was held in the same format as the November 2 event. Public display materials are posted on GBA project webpage: <https://www.greaterbaybrookalliance.org/baybrookconnector>.

Attendees of the October 26 virtual public meeting and November 2 meeting at Medstar were generally in favor of the project and perceived benefits. Some attendees of the November 10 meeting at Chesapeake Arts Center meeting were more cautious in their support of the project due to perceived indirect impacts to the surrounding community, including questions about the security and maintenance needs presented by the shared-use path. Further, some attendees, mostly Pumphrey's residents, suggested that the team might consider an alternative alignment that could avoid the use of local neighborhood streets, Shenandoah Avenue and Gibbons Avenue by cutting through Patapsco Valley Stream Park or connecting to the light rail station by way of Henson Avenue. The project team may further consider these alternative alignments as the project moves to more detailed design.

IV. NEXT STEPS

The anticipated permits and approvals described in **Table 4** are based on the results of the desktop environmental screen and the proposed design. This detail is intended only to inform the concept feasibility. Detailed resource delineation, including property access and agency consultation, and design would be required prior to any permitting action.

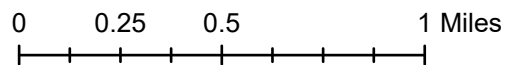
Table 4: Summary of Potential Permit/Approvals Required

REQUIRED	PERMIT/APPROVAL	COMMENTS/NOTES
Yes	NEPA/MEPA Compliance	
Yes	Section 106 of the NHPA Compliance	<i>Additional desktop review and potentially field research by a cultural resources' specialist would be required to identify the potential for archaeological resources within the study area. The proposed project would be subject to the requirements of Section 106 of the National Historic Preservation Act of 1966 (NHPA).</i>
Yes	Section 4(f) of the US DOT Act	<i>The environmental screening identified Patapsco Valley State Park and Pumphreys Park as potentially impacted resources subject to protection under Section 4(f) of the USDOT</i>

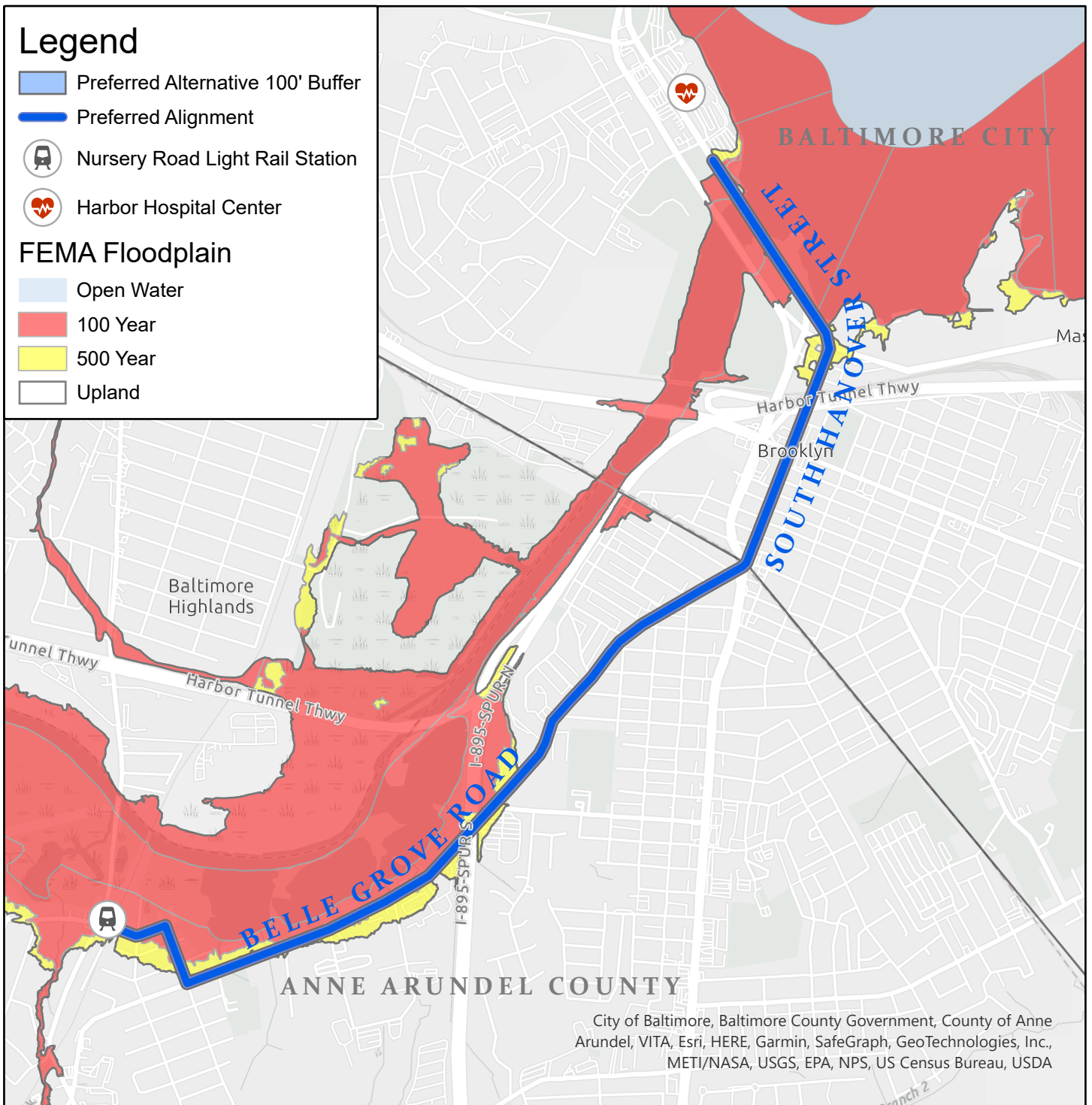
REQUIRED	PERMIT/APPROVAL	COMMENTS/NOTES
		<i>Act. Should it be determined Section 4(f) resources would be impacted by the proposed design Section 4(f) compliance would be required.</i>
No	Section 7 Consultation	<i>Documentation complete; however, additional evaluation and consultation would be needed should the proposed improvements require federal NEPA compliance and result in tree clearing greater than or equal to 15 acres.</i>
Yes	Chesapeake Bay Critical Area Consultation	<i>Impacts within the CBCA will require project review and coordination regarding impacts with Anne Arundel County and Baltimore City to determine appropriate mitigation.</i>
No	MD Reforestation Law - Approval	<i>This determination may change depending on the area of impact to forest resources.</i>
Yes	MD Roadside Tree Permit	<i>This determination may change depending on the area of impact to forest resources.</i>
No	MD Forest Conservation Act Permit	
Yes	SWM/E&S Control Permit	
Yes	NPDES General Permit for Construction Activity	
Yes	Joint Permit Application (JPA)	<i>The environmental screening of GIS data identified potential wetlands and streams within the project area. Detailed delineation of resources is required. If resources are identified within the project area that would be impacted, then a JPA may be required.</i>
Yes	Change/alteration to easement/property permit	<i>This evaluation included the preparation of an existing property mosaic based on existing records/deeds. Detailed ROW survey is required to fully assess the extent of impacts.</i>
Yes	Right-of-Way acquisition	<i>This evaluation included the preparation of an existing property mosaic based on existing</i>

REQUIRED	PERMIT/APPROVAL	COMMENTS/NOTES
		<i>records/deeds. Detailed ROW survey is required to fully assess the extent of impacts.</i>

Appendix A - Environmental Features



Appendix A - Environmental Features



0 0.25 0.5 1 Miles



Appendix B – Soil Resource Report



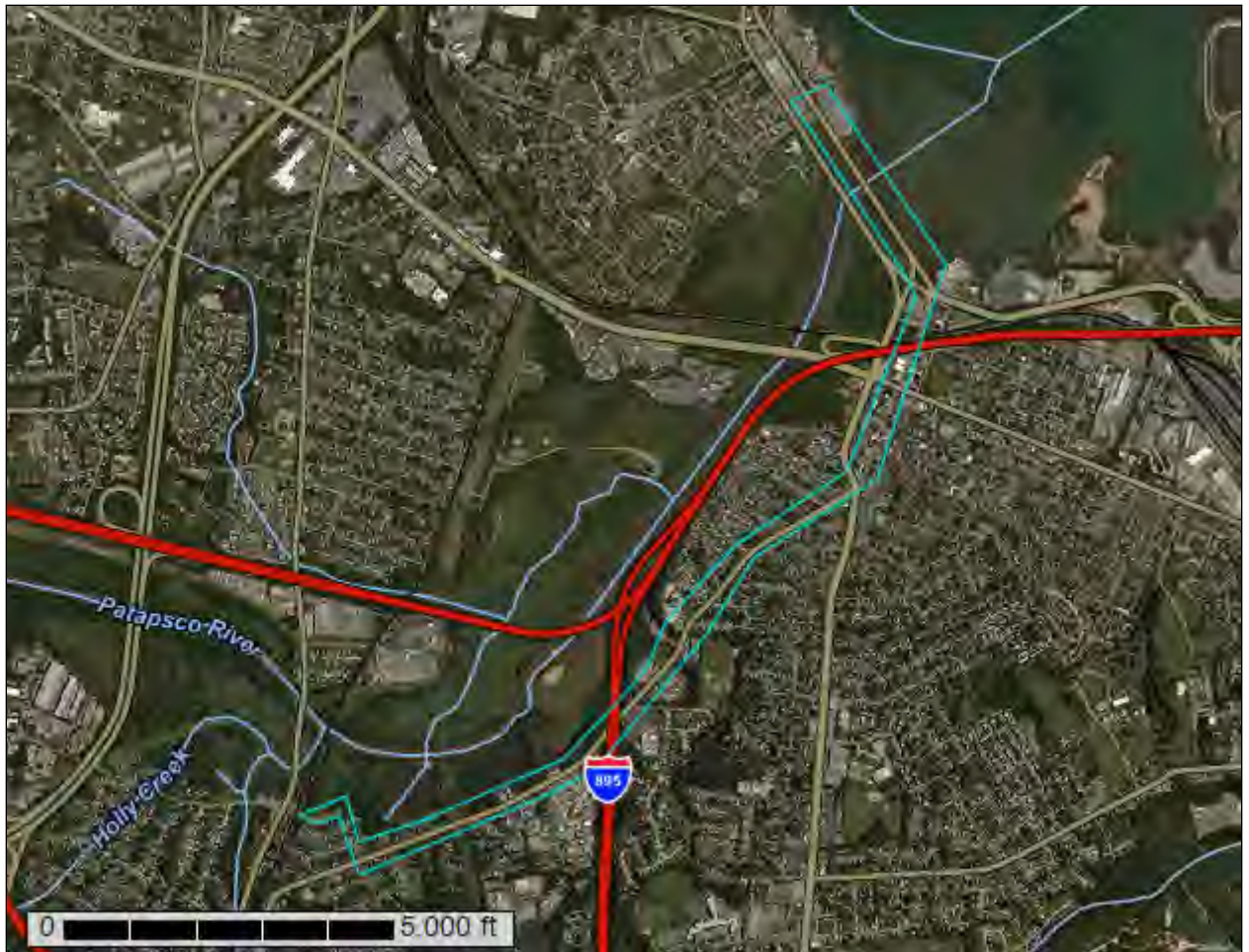
United States
Department of
Agriculture

NRCS

Natural
Resources
Conservation
Service

A product of the National
Cooperative Soil Survey,
a joint effort of the United
States Department of
Agriculture and other
Federal agencies, State
agencies including the
Agricultural Experiment
Stations, and local
participants

Custom Soil Resource Report for Anne Arundel County, Maryland, and City of Baltimore, Maryland



Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<https://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

Custom Soil Resource Report

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

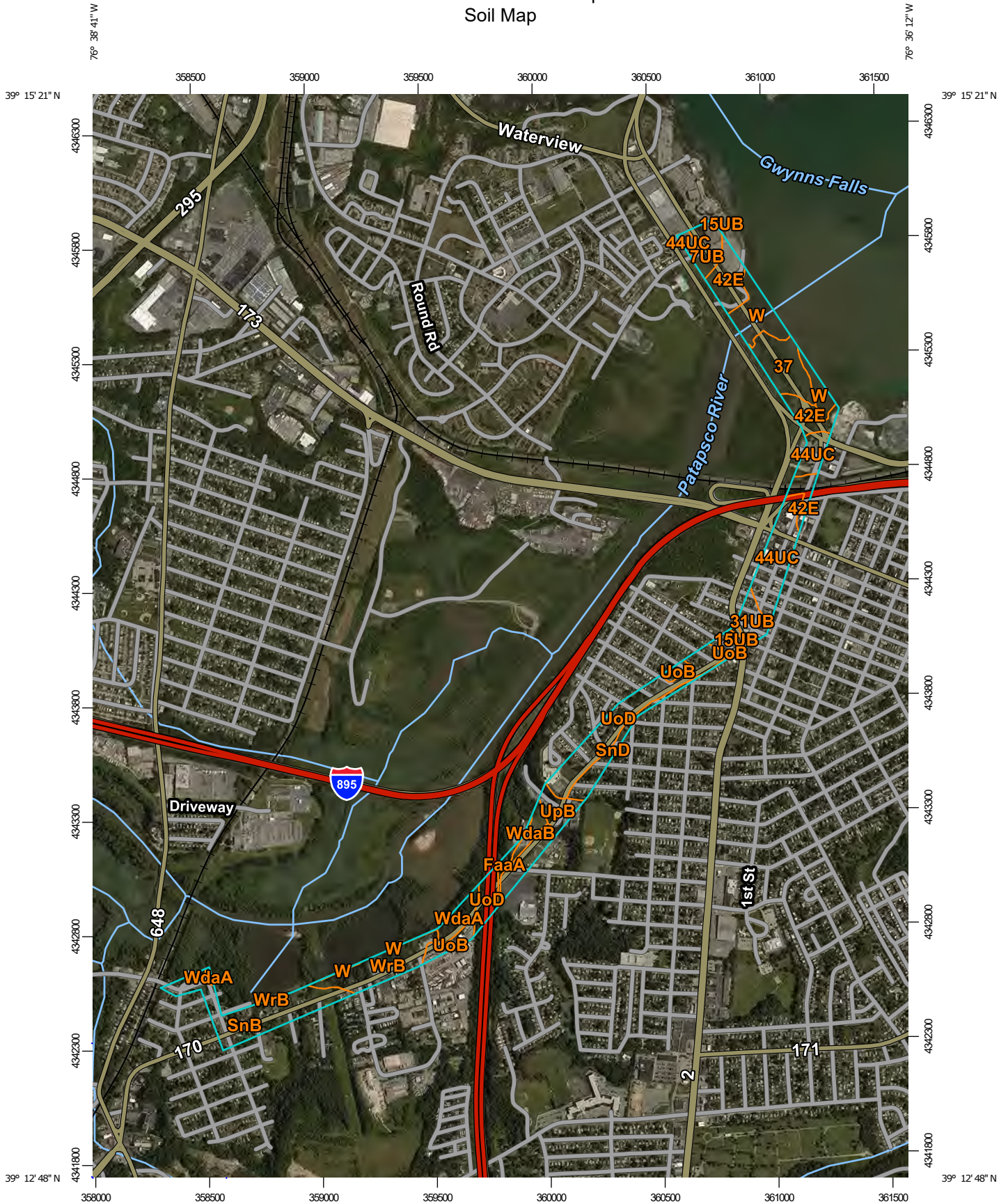
Custom Soil Resource Report

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report Soil Map




Map Scale: 1:23,100 if printed on A portrait (8.5" x 11") sheet.




Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)




















Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines


 Soil Map Unit Points

Special Point Features






-  Blowout
-  Borrow Pit
-  Clay Spot
-  Closed Depression
-  Gravel Pit
-  Gravelly Spot
-  Landfill
-  Lava Flow
-  Marsh or swamp
-  Mine or Quarry
-  Miscellaneous Water
-  Perennial Water
-  Rock Outcrop
-  Saline Spot
-  Sandy Spot
-  Severely Eroded Spot
-  Sinkhole
-  Slide or Slip
-  Sodic Spot

-  Spoil Area
-  Stony Spot
-  Very Stony Spot
-  Wet Spot
-  Other
-  Special Line Features


Water Features

 Streams and Canals

Transportation

-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
 Web Soil Survey URL:
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Anne Arundel County, Maryland
 Survey Area Data: Version 20, Aug 26, 2021

Soil Survey Area: City of Baltimore, Maryland
 Survey Area Data: Version 17, Aug 26, 2021

Your area of interest (AOI) includes more than one soil survey area. These survey areas may have been mapped at different scales, with a different land use in mind, at different times, or at different levels of detail. This may result in map unit symbols, soil properties, and interpretations that do not completely agree across soil survey area boundaries.

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Nov 5, 2011—Aug 15, 2014

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background

MAP LEGEND

MAP INFORMATION

imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
FaaA	Fallsington sandy loams, 0 to 2 percent slopes, northern coastal plain	1.7	1.0%
MZA	Mispiration and Transquaking soils, 0 to 1 percent slopes, tidally flooded	0.3	0.2%
SnB	Sassafras-Urban land complex, 0 to 5 percent slopes	21.5	12.7%
SnD	Sassafras-Urban land complex, 5 to 15 percent slopes	6.5	3.9%
UoB	Udorthents, loamy, 0 to 5 percent slopes	7.8	4.6%
UoD	Udorthents, loamy, 5 to 15 percent slopes	25.0	14.8%
UpB	Udorthents, reclaimed gravel pits, 0 to 5 percent slopes	5.0	3.0%
Uz	Urban land	6.1	3.6%
W	Water	0.2	0.1%
WdaA	Woodstown sandy loam, 0 to 2 percent slopes, Northern Coastal Plain	5.2	3.0%
WdaB	Woodstown sandy loam, 2 to 5 percent slopes, Northern Coastal Plain	3.0	1.7%
WrB	Woodstown-Urban land complex, 0 to 5 percent slopes	13.4	7.9%
Subtotals for Soil Survey Area		95.7	56.5%
Totals for Area of Interest		169.4	100.0%

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
7UB	Christiana-Urban land complex, 0 to 8 percent slopes	6.1	3.6%
15UB	Keyport-Urban land complex, 0 to 8 percent slopes	0.3	0.2%
31UB	Urban land-Sassafras complex, 0 to 8 percent slopes	5.0	2.9%
37	Sulfaquepts, frequently flooded	11.9	7.0%
42E	Udorthents, smoothed, 0 to 35 percent slopes	17.1	10.1%
44UC	Urban land, 0 to 15 percent slopes	20.1	11.9%
W	Water	13.2	7.8%

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Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Subtotals for Soil Survey Area		73.7	43.5%
Totals for Area of Interest		169.4	100.0%

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Custom Soil Resource Report

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Anne Arundel County, Maryland

FaaA—Fallsington sandy loams, 0 to 2 percent slopes, northern coastal plain

Map Unit Setting

National map unit symbol: 2s96w
Elevation: 0 to 100 feet
Mean annual precipitation: 42 to 48 inches
Mean annual air temperature: 52 to 58 degrees F
Frost-free period: 180 to 220 days
Farmland classification: Prime farmland if drained

Map Unit Composition

Fallsington, undrained, and similar soils: 48 percent
Fallsington, drained, and similar soils: 27 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Fallsington, Undrained

Setting

Landform: Swales, flats, drainageways, depressions
Landform position (three-dimensional): Dip, talf
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave
Parent material: Loamy fluviomarine deposits

Typical profile

Oe - 0 to 2 inches: mucky peat
A - 2 to 10 inches: sandy loam
Btg - 10 to 32 inches: sandy clay loam
BCg - 32 to 39 inches: loamy sand
Cg1 - 39 to 46 inches: sandy clay loam
Cg2 - 46 to 80 inches: sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.01 to 1.98 in/hr)
Depth to water table: About 0 to 10 inches
Frequency of flooding: None
Frequency of ponding: Occasional
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.3 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 8.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: C/D
Hydric soil rating: Yes

Description of Fallsington, Drained

Setting

Landform: Swales, depressions, flats
Landform position (three-dimensional): Dip, talf
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave
Parent material: Loamy fluviomarine deposits

Typical profile

Ap - 0 to 10 inches: sandy loam
Btg - 10 to 32 inches: sandy clay loam
BCg - 32 to 39 inches: loamy sand
Cg1 - 39 to 46 inches: sandy clay loam
Cg2 - 46 to 80 inches: sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.01 to 1.98 in/hr)
Depth to water table: About 10 to 20 inches
Frequency of flooding: None
Frequency of ponding: Rare
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.3 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 8.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: C/D
Hydric soil rating: Yes

Minor Components

Woodstown

Percent of map unit: 9 percent
Landform: Depressions, broad interstream divides, flats, fluviomarine terraces
Landform position (two-dimensional): Footslope, summit
Landform position (three-dimensional): Tread, dip, talf
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Hydric soil rating: No

Hambrook

Percent of map unit: 8 percent
Landform: Flats, depressions, fluviomarine terraces
Landform position (two-dimensional): Summit, footslope
Landform position (three-dimensional): Tread, talf, dip
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Hydric soil rating: No

Hammonton

Percent of map unit: 8 percent
Landform: Drainageways, flats

Custom Soil Resource Report

Landform position (three-dimensional): Dip, talf
Down-slope shape: Concave, linear
Across-slope shape: Linear
Hydric soil rating: No

MZA—Mispillion and Transquaking soils, 0 to 1 percent slopes, tidally flooded

Map Unit Setting

National map unit symbol: 4mdb
Elevation: 0 feet
Mean annual precipitation: 40 to 50 inches
Mean annual air temperature: 52 to 58 degrees F
Frost-free period: 180 to 220 days
Farmland classification: Not prime farmland

Map Unit Composition

Mispillion and similar soils: 45 percent
Transquaking and similar soils: 40 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Mispillion

Setting

Landform: Tidal marshes
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Herbaceous organic material over silty estuarine sediments

Typical profile

Oe - 0 to 24 inches: mucky peat
Oa - 24 to 40 inches: muck
Cg1 - 40 to 54 inches: mucky silt loam
Cg2 - 54 to 80 inches: silt loam

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high
(0.06 to 1.98 in/hr)
Depth to water table: About 0 to 5 inches
Frequency of flooding: Very frequent
Frequency of ponding: None
Maximum salinity: Moderately saline to strongly saline (15.0 to 50.0 mmhos/cm)
Sodium adsorption ratio, maximum: 35.0
Available water supply, 0 to 60 inches: Very high (about 21.6 inches)

Custom Soil Resource Report

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydrologic Soil Group: A/D
Hydric soil rating: Yes

Description of Transquaking

Setting

Landform: Tidal marshes
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Herbaceous organic material over estuarine deposits

Typical profile

Oe - 0 to 46 inches: mucky peat
Oa - 46 to 65 inches: muck
Cg - 65 to 80 inches: silty clay loam

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high
(0.06 to 5.95 in/hr)
Depth to water table: About 0 to 10 inches
Frequency of flooding: Very frequent
Frequency of ponding: None
Maximum salinity: Strongly saline (25.0 to 40.0 mmhos/cm)
Sodium adsorption ratio, maximum: 32.0
Available water supply, 0 to 60 inches: Very high (about 26.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydrologic Soil Group: A/D
Hydric soil rating: Yes

Minor Components

Hydraquents

Percent of map unit: 15 percent
Landform: Tidal flats, flood plains, mud flats
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

SnB—Sassafras-Urban land complex, 0 to 5 percent slopes

Map Unit Setting

National map unit symbol: 4m8b
Elevation: 10 to 330 feet
Mean annual precipitation: 40 to 50 inches
Mean annual air temperature: 52 to 57 degrees F
Frost-free period: 175 to 220 days
Farmland classification: Not prime farmland

Map Unit Composition

Sassafras and similar soils: 45 percent
Urban land: 35 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Sassafras

Setting

Landform: Knolls, broad interstream divides, fluviomarine terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loamy fluviomarine deposits

Typical profile

Ap - 0 to 9 inches: sandy loam
E - 9 to 15 inches: sandy loam
Bt - 15 to 30 inches: loam
BC - 30 to 37 inches: sandy loam
C - 37 to 80 inches: loamy sand

Properties and qualities

Slope: 0 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 7.8 inches)

Interpretive groups

Land capability classification (irrigated): 1
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: B
Hydric soil rating: No

Description of Urban Land

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 8

Hydrologic Soil Group: D

Hydric soil rating: No

Minor Components

Woodstown

Percent of map unit: 5 percent

Landform: Broad interstream divides, swales, depressions, interfluves, fluvio-marine terraces, drainhead complexes

Landform position (two-dimensional): Footslope

Landform position (three-dimensional): Tread

Down-slope shape: Linear, concave

Across-slope shape: Linear, concave

Hydric soil rating: No

Hambrook

Percent of map unit: 5 percent

Landform: Interfluves, swales, broad interstream divides, fluvio-marine terraces, drainhead complexes

Landform position (two-dimensional): Summit

Landform position (three-dimensional): Tread

Down-slope shape: Linear

Across-slope shape: Linear

Hydric soil rating: No

Phalanx

Percent of map unit: 5 percent

Landform: Divides

Down-slope shape: Linear

Across-slope shape: Linear

Hydric soil rating: No

Matapeake

Percent of map unit: 5 percent

Landform: Broad interstream divides, interfluves, fluvio-marine terraces

Landform position (two-dimensional): Summit

Landform position (three-dimensional): Tread

Down-slope shape: Linear

Across-slope shape: Linear

Hydric soil rating: No

SnD—Sassafras-Urban land complex, 5 to 15 percent slopes

Map Unit Setting

National map unit symbol: 4m8c
Elevation: 10 to 330 feet
Mean annual precipitation: 40 to 50 inches
Mean annual air temperature: 52 to 57 degrees F
Frost-free period: 175 to 220 days
Farmland classification: Not prime farmland

Map Unit Composition

Sassafras and similar soils: 55 percent
Urban land: 30 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Sassafras

Setting

Landform: Knolls, interfluves, fluviomarine terraces, ravines
Landform position (three-dimensional): Riser
Down-slope shape: Convex, linear
Across-slope shape: Convex, linear
Parent material: Loamy fluviomarine deposits

Typical profile

A - 0 to 3 inches: fine sandy loam
BE - 3 to 18 inches: fine sandy loam
Bt - 18 to 50 inches: sandy clay loam
CB - 50 to 72 inches: stratified fine sandy loam to loam to silt loam to sandy clay loam

Properties and qualities

Slope: 5 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: High (about 9.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: B
Hydric soil rating: No

Description of Urban Land

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 8

Hydrologic Soil Group: D

Hydric soil rating: No

Minor Components

Phalanx

Percent of map unit: 5 percent

Landform: Divides

Down-slope shape: Linear

Across-slope shape: Linear

Hydric soil rating: No

Sassafras

Percent of map unit: 5 percent

Landform: Broad interstream divides, interfluves, fluviomarine terraces

Landform position (two-dimensional): Summit

Landform position (three-dimensional): Tread

Down-slope shape: Linear

Across-slope shape: Linear

Hydric soil rating: No

Woodstown

Percent of map unit: 5 percent

Landform: Depressions, interfluves, broad interstream divides, swales, fluviomarine terraces, drainhead complexes

Landform position (two-dimensional): Footslope

Landform position (three-dimensional): Tread

Down-slope shape: Concave, linear

Across-slope shape: Concave, linear

Hydric soil rating: No

UoB—Udorthents, loamy, 0 to 5 percent slopes

Map Unit Setting

National map unit symbol: 4mf8

Elevation: 0 to 300 feet

Mean annual precipitation: 40 to 50 inches

Mean annual air temperature: 52 to 57 degrees F

Frost-free period: 180 to 210 days

Farmland classification: Not prime farmland

Map Unit Composition

Udorthents, loamy, and similar soils: 90 percent

Minor components: 10 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Udorthents, Loamy

Setting

Landform: Interfluves
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loamy fluviomarine deposits

Typical profile

AC - 0 to 2 inches: loam
C - 2 to 72 inches: gravelly loam

Properties and qualities

Slope: 0 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to very high (0.01 to 19.98 in/hr)
Depth to water table: About 40 to 72 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 8.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C
Hydric soil rating: No

Minor Components

Urban land

Percent of map unit: 10 percent
Hydric soil rating: No

UoD—Udorthents, loamy, 5 to 15 percent slopes

Map Unit Setting

National map unit symbol: 4mf9
Elevation: 0 to 300 feet
Mean annual precipitation: 40 to 50 inches
Mean annual air temperature: 52 to 57 degrees F
Frost-free period: 180 to 210 days
Farmland classification: Not prime farmland

Map Unit Composition

Udorthents and similar soils: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Udorthents

Setting

Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loamy fluviomarine deposits

Typical profile

AC - 0 to 2 inches: loam
C - 2 to 72 inches: gravelly loam

Properties and qualities

Slope: 5 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to very high (0.01 to 19.98 in/hr)
Depth to water table: About 40 to 72 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 8.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C
Hydric soil rating: No

UpB—Udorthents, reclaimed gravel pits, 0 to 5 percent slopes

Map Unit Setting

National map unit symbol: 4mfc
Elevation: 30 to 660 feet
Mean annual precipitation: 40 to 50 inches
Mean annual air temperature: 52 to 57 degrees F
Frost-free period: 180 to 210 days
Farmland classification: Not prime farmland

Map Unit Composition

Udorthents and similar soils: 75 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Udorthents

Setting

Landform: Interfluves, fluviomarine terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear

Custom Soil Resource Report

Typical profile

AC - 0 to 4 inches: gravelly sandy loam
C - 4 to 72 inches: very gravelly sandy loam

Properties and qualities

Slope: 0 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Very low to high (0.00 to 5.95 in/hr)
Depth to water table: About 40 to 72 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 4.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C
Hydric soil rating: No

Minor Components

Aquic udorthents

Percent of map unit: 10 percent
Hydric soil rating: No

Evesboro

Percent of map unit: 5 percent
Landform: Interfluves, broad interstream divides
Landform position (two-dimensional): Summit
Hydric soil rating: No

Christiana

Percent of map unit: 5 percent
Landform: Broad interstream divides, interfluves, swales, drainhead complexes
Landform position (two-dimensional): Summit, footslope
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Downer

Percent of map unit: 5 percent
Landform: Interfluves
Landform position (two-dimensional): Summit
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Uz—Urban land

Map Unit Setting

National map unit symbol: ngbx
Mean annual precipitation: 40 to 50 inches
Mean annual air temperature: 52 to 57 degrees F
Frost-free period: 180 to 210 days
Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Urban Land

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydrologic Soil Group: D
Hydric soil rating: No

W—Water

Map Unit Setting

National map unit symbol: 4m91
Mean annual precipitation: 40 to 50 inches
Mean annual air temperature: 52 to 57 degrees F
Frost-free period: 180 to 210 days
Farmland classification: Not prime farmland

Map Unit Composition

Water: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

WdaA—Woodstown sandy loam, 0 to 2 percent slopes, Northern Coastal Plain

Map Unit Setting

National map unit symbol: 2thvw
Elevation: 0 to 280 feet
Mean annual precipitation: 42 to 48 inches

Custom Soil Resource Report

Mean annual air temperature: 52 to 58 degrees F

Frost-free period: 180 to 220 days

Farmland classification: All areas are prime farmland

Map Unit Composition

Woodstown and similar soils: 81 percent

Minor components: 19 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Woodstown

Setting

Landform: Depressions, broad interstream divides, flats, fluvio-marine terraces

Landform position (two-dimensional): Footslope, summit

Landform position (three-dimensional): Tread, dip, talf

Down-slope shape: Concave, linear

Across-slope shape: Concave, linear

Parent material: Loamy fluvio-marine deposits

Typical profile

Ap - 0 to 7 inches: sandy loam

E - 7 to 11 inches: sandy loam

Bt - 11 to 29 inches: sandy loam

BCg - 29 to 45 inches: fine sandy loam

Cg - 45 to 80 inches: loamy sand

Properties and qualities

Slope: 0 to 2 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Moderately well drained

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.57 to 1.98 in/hr)

Depth to water table: About 20 to 40 inches

Frequency of flooding: None

Frequency of ponding: None

Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Available water supply, 0 to 60 inches: Moderate (about 8.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2w

Hydrologic Soil Group: C

Hydric soil rating: No

Minor Components

Fallsington

Percent of map unit: 7 percent

Landform: Drainageways, depressions, swales, flats

Landform position (two-dimensional): Footslope

Landform position (three-dimensional): Dip, talf

Down-slope shape: Concave, linear

Across-slope shape: Concave, linear

Hydric soil rating: Yes

Hammonton

Percent of map unit: 7 percent

Custom Soil Resource Report

Landform: Flats, broad interstream divides
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Hambrook

Percent of map unit: 5 percent
Landform: Flats, fluviomarine terraces
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread, talf
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

WdaB—Woodstown sandy loam, 2 to 5 percent slopes, Northern Coastal Plain

Map Unit Setting

National map unit symbol: 2thvx
Elevation: 0 to 490 feet
Mean annual precipitation: 42 to 48 inches
Mean annual air temperature: 52 to 58 degrees F
Frost-free period: 180 to 220 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Woodstown and similar soils: 81 percent
Minor components: 19 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Woodstown

Setting

Landform: Flats, depressions, broad interstream divides, fluviomarine terraces
Landform position (two-dimensional): Shoulder, footslope
Landform position (three-dimensional): Riser, dip
Down-slope shape: Convex, concave
Across-slope shape: Linear, concave
Parent material: Loamy fluviomarine deposits

Typical profile

Ap - 0 to 7 inches: sandy loam
E - 7 to 11 inches: sandy loam
Bt - 11 to 29 inches: sandy loam
BCg - 29 to 45 inches: fine sandy loam
Cg - 45 to 80 inches: loamy sand

Properties and qualities

Slope: 2 to 5 percent

Custom Soil Resource Report

Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.57 to 1.98 in/hr)
Depth to water table: About 20 to 40 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 8.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C
Hydric soil rating: No

Minor Components

Hammonton

Percent of map unit: 7 percent
Landform: Flats, broad interstream divides
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Dip
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

Fallsington, occasionally ponded

Percent of map unit: 7 percent
Landform: Drainageways, depressions, swales, flats
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Dip, talf
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Hydric soil rating: Yes

Hambrook

Percent of map unit: 5 percent
Landform: Flats, fluviomarine terraces
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Riser, dip
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

WrB—Woodstown-Urban land complex, 0 to 5 percent slopes

Map Unit Setting

National map unit symbol: 4mfg
Elevation: 10 to 120 feet
Mean annual precipitation: 40 to 50 inches

Custom Soil Resource Report

Mean annual air temperature: 52 to 57 degrees F
Frost-free period: 180 to 210 days
Farmland classification: Not prime farmland

Map Unit Composition

Woodstown and similar soils: 50 percent
Urban land: 35 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Woodstown

Setting

Landform: Broad interstream divides, swales, depressions, interfluves, fluviomarine terraces, drainhead complexes
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Parent material: Loamy fluviomarine deposits

Typical profile

Ap - 0 to 8 inches: sandy loam
Bt - 8 to 28 inches: loam
BC - 28 to 42 inches: fine sandy loam
CB - 42 to 60 inches: sandy loam
CBg - 60 to 72 inches: loamy sand

Properties and qualities

Slope: 0 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 2.00 in/hr)
Depth to water table: About 20 to 40 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 8.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C
Hydric soil rating: No

Description of Urban Land

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydrologic Soil Group: D
Hydric soil rating: No

Minor Components

Hammonton

Percent of map unit: 5 percent

Landform: Broad interstream divides, depressions, interfluves, swales, drainhead complexes, fluviomarine terraces

Landform position (two-dimensional): Footslope

Landform position (three-dimensional): Tread

Down-slope shape: Linear, concave

Across-slope shape: Linear, concave

Hydric soil rating: No

Hambrook

Percent of map unit: 5 percent

Landform: Broad interstream divides, interfluves

Landform position (two-dimensional): Summit

Hydric soil rating: No

Fallsington

Percent of map unit: 5 percent

Landform: Depressions, drainageways, swales, drainhead complexes

Hydric soil rating: Yes

City of Baltimore, Maryland

7UB—Christiana-Urban land complex, 0 to 8 percent slopes

Map Unit Setting

National map unit symbol: kxmy
Elevation: 10 to 350 feet
Mean annual precipitation: 38 to 48 inches
Mean annual air temperature: 48 to 57 degrees F
Frost-free period: 150 to 220 days
Farmland classification: Not prime farmland

Map Unit Composition

Christiana and similar soils: 41 percent
Urban land: 39 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Christiana

Typical profile

H1 - 0 to 11 inches: loam
H2 - 11 to 65 inches: clay

Properties and qualities

Slope: 0 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: High (about 10.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C
Hydric soil rating: No

Description of Urban Land

Typical profile

H1 - 0 to 60 inches: variable

Properties and qualities

Slope: 0 to 8 percent
Depth to restrictive feature: 10 inches to
Available water supply, 0 to 60 inches: Very low (about 0.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8s
Hydrologic Soil Group: D

Custom Soil Resource Report

Hydric soil rating: No

Minor Components

Keyport

Percent of map unit: 10 percent

Hydric soil rating: No

Sunnyside

Percent of map unit: 10 percent

Hydric soil rating: No

15UB—Keyport-Urban land complex, 0 to 8 percent slopes

Map Unit Setting

National map unit symbol: kxkk

Elevation: 0 to 650 feet

Mean annual precipitation: 35 to 55 inches

Mean annual air temperature: 45 to 64 degrees F

Frost-free period: 150 to 250 days

Farmland classification: Not prime farmland

Map Unit Composition

Keyport and similar soils: 41 percent

Urban land: 39 percent

Minor components: 20 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Keyport

Typical profile

H1 - 0 to 4 inches: loam

H2 - 4 to 48 inches: silty clay

2Cg - 48 to 80 inches: stratified silt loam to sandy loam

Properties and qualities

Slope: 0 to 8 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Moderately well drained

Runoff class: Medium

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)

Depth to water table: About 18 to 48 inches

Frequency of flooding: None

Frequency of ponding: None

Available water supply, 0 to 60 inches: High (about 10.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2e

Custom Soil Resource Report

Hydrologic Soil Group: D
Hydric soil rating: No

Description of Urban Land

Typical profile

H1 - 0 to 60 inches: variable

Properties and qualities

Slope: 0 to 8 percent

Depth to restrictive feature: 10 inches to

Available water supply, 0 to 60 inches: Very low (about 0.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 8s

Hydrologic Soil Group: D

Hydric soil rating: No

Minor Components

Beltsville

Percent of map unit: 5 percent

Hydric soil rating: No

Christiana

Percent of map unit: 5 percent

Hydric soil rating: No

Elkton

Percent of map unit: 5 percent

Landform: Flats

Hydric soil rating: Yes

Sassafras

Percent of map unit: 3 percent

Hydric soil rating: No

Sunnyside

Percent of map unit: 2 percent

Hydric soil rating: No

31UB—Urban land-Sassafras complex, 0 to 8 percent slopes

Map Unit Setting

National map unit symbol: kxly

Elevation: 10 to 650 feet

Mean annual precipitation: 35 to 55 inches

Mean annual air temperature: 45 to 64 degrees F

Frost-free period: 160 to 250 days

Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 75 percent

Sassafras and similar soils: 10 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Urban Land

Typical profile

H1 - 0 to 60 inches: variable

Properties and qualities

Slope: 0 to 8 percent

Depth to restrictive feature: 10 inches to

Available water supply, 0 to 60 inches: Very low (about 0.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 8s

Hydrologic Soil Group: D

Hydric soil rating: No

Description of Sassafras

Typical profile

H1 - 0 to 35 inches: gravelly loam

H2 - 35 to 65 inches: gravelly sandy loam

Properties and qualities

Slope: 0 to 8 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Runoff class: Very low

*Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.57 to 5.95 in/hr)*

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water supply, 0 to 60 inches: Moderate (about 6.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2e

Hydrologic Soil Group: A

Hydric soil rating: No

Minor Components

Beltsville

Percent of map unit: 5 percent

Hydric soil rating: No

Keyport

Percent of map unit: 5 percent

Hydric soil rating: No

Joppa

Percent of map unit: 3 percent

Hydric soil rating: No

Matapeake

Percent of map unit: 2 percent

Hydric soil rating: No

37—Sulfaquepts, frequently flooded

Map Unit Setting

National map unit symbol: kxm9

Elevation: 0 to 30 feet

Mean annual precipitation: 43 to 44 inches

Mean annual air temperature: 57 degrees F

Frost-free period: 225 to 230 days

Farmland classification: Not prime farmland

Map Unit Composition

Sulfaquepts and similar soils: 100 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Sulfaquepts

Setting

Landform: Flood plains

Properties and qualities

Slope: 0 to 35 percent

Depth to restrictive feature: More than 80 inches

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

42E—Udorthents, smoothed, 0 to 35 percent slopes

Map Unit Setting

National map unit symbol: kxmn

Elevation: 10 to 500 feet

Mean annual precipitation: 42 to 48 inches

Mean annual air temperature: 46 to 57 degrees F

Frost-free period: 190 to 210 days

Farmland classification: Not prime farmland

Map Unit Composition

Udorthents and similar soils: 100 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Udorthents

Typical profile

H1 - 0 to 5 inches: gravelly sandy loam
C - 5 to 65 inches: gravelly loam

Properties and qualities

Slope: 0 to 35 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high
(0.01 to 5.95 in/hr)
Depth to water table: About 0 to 72 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 8.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: C
Hydric soil rating: No

44UC—Urban land, 0 to 15 percent slopes

Map Unit Composition

Urban land: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Urban Land

Typical profile

H1 - 0 to 60 inches: variable

Properties and qualities

Slope: 0 to 15 percent
Depth to restrictive feature: 10 inches to
Available water supply, 0 to 60 inches: Very low (about 0.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8s
Hydrologic Soil Group: D
Hydric soil rating: No

W—Water

Map Unit Composition

Water: 100 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

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Custom Soil Resource Report

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242

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United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf

Appendix C – Threatened and Endangered Species Review



Larry Hogan, Governor
Boyd Rutherford, Lt. Governor
Jeannie Haddaway-Riccio, Secretary
Allan Fisher, Deputy Secretary

February 17, 2022

RE: Environmental Review for Greater Baybrook Alliance Proposed Bike and Pedestrian Facility - extension of Gwynns Falls Trail, Anne Arundel County/Baltimore City, Maryland.

Dear Ms. Morris:

The Wildlife and Heritage Service has no official records for State or Federal listed, candidate, proposed, or rare plant or animal species within the project area shown on the map provided. As a result, we have no specific concerns regarding potential impacts to such species or recommendations for protection measures at this time. If the project changes in the future such that the limits of proposed disturbance or overall site boundaries are modified, please provide us with revised project maps and we will provide you with an updated evaluation.

Thank you for allowing us the opportunity to review this project. If you should have any further questions regarding this information, please contact me at lori.byrne@maryland.gov or at (410) 260-8573.

Sincerely,

Lori A. Byrne,
Environmental Review Coordinator
Wildlife and Heritage Service
MD Dept. of Natural Resources

ER# 2022.0020.bc/aa
Cc: C. Jones, CAC



United States Department of the Interior



FISH AND WILDLIFE SERVICE
Chesapeake Bay Ecological Services Field Office
177 Admiral Cochrane Drive
Annapolis, MD 21401-7307

Phone: (410) 573-4599 Fax: (410) 266-9127

<http://www.fws.gov/chesapeakebay/>

<http://www.fws.gov/chesapeakebay/endsppweb/ProjectReview/Index.html>

In Reply Refer To:

January 07, 2022

Consultation Code: 05E2CB00-2022-SLI-0170

Event Code: 05E2CB00-2022-E-01471

Project Name: Baybrook

Subject: Updated list of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. This species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (<http://www.fws.gov/windenergy/>) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at:

<http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm>;

<http://www.towerkill.com>; and

[http://](http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html)

www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
 - USFWS National Wildlife Refuges and Fish Hatcheries
 - Wetlands
-

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Chesapeake Bay Ecological Services Field Office

177 Admiral Cochrane Drive

Annapolis, MD 21401-7307

(410) 573-4599

Project Summary

Consultation Code: 05E2CB00-2022-SLI-0170

Event Code: Some(05E2CB00-2022-E-01471)

Project Name: Baybrook

Project Type: TRANSPORTATION

Project Description: Shared Use Path

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@39.2351764,-76.61122149951153,14z>



Counties: Anne Arundel and Baltimore counties, Maryland

Endangered Species Act Species

There is a total of 2 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Note that 2 of these species should be considered only under certain conditions.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

-
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Northern Long-eared Bat <i>Myotis septentrionalis</i> No critical habitat has been designated for this species. This species only needs to be considered under the following conditions: <ul style="list-style-type: none"> Projects with a federal nexus that have tree clearing = to or > 15 acres: 1. REQUEST A SPECIES LIST 2. NEXT STEP: EVALUATE DETERMINATION KEYS 3. SELECT EVALUATE under the Northern Long-Eared Bat (NLEB) Consultation and 4(d) Rule Consistency key Species profile: https://ecos.fws.gov/ecp/species/9045	Threatened

Insects

NAME	STATUS
Monarch Butterfly <i>Danaus plexippus</i> No critical habitat has been designated for this species. This species only needs to be considered under the following conditions: <ul style="list-style-type: none"> The monarch is a candidate species and not yet listed or proposed for listing. There are generally no section 7 requirements for candidate species (FAQ found here: https://www.fws.gov/savethemonarch/FAQ-Section7.html). Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

USFWS National Wildlife Refuge Lands And Fish Hatcheries

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

Wetlands

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

WETLAND INFORMATION WAS NOT AVAILABLE WHEN THIS SPECIES LIST WAS GENERATED. PLEASE VISIT [HTTPS://WWW.FWS.GOV/WETLANDS/DATA/MAPPER.HTML](https://www.fws.gov/wetlands/data/mapper.html) OR CONTACT THE FIELD OFFICE FOR FURTHER INFORMATION.

Alexis Morris

From: Christopher Aadland -DNR- <christopher.aadland@maryland.gov>
Sent: Monday, January 24, 2022 12:18 PM
To: Alexis Morris
Subject: MDDNR Fisheries Scoping Information for the Greater Baybrook Alliance Proposed Bike and Pedestrian Facility, Baltimore City and County

Dear Lex;

We have a new procedure for reviewing fisheries screening requests. Previously, the Maryland Department of Natural Resources, Environmental Review Program has conducted pre-application screening, utilizing mapped resource information available to the Department, to provide information to those requesting it, concerning fisheries and other aquatic resources present in a requester defined location that might be impacted by a proposed construction project or activity. This early screening has served to inform the subsequent design and engineering for projects, often resulting in a reduction in impacts to aquatic resources. A similar but separate resource presence review for rare, threatened or endangered species is performed by the Department's Natural Heritage Program.

The Environmental Review Program continues to support screening for aquatic resources early in the project planning and design stages but will no longer be providing this screening service for applicants in the same manner as we have in the past. Rather, we have established a process and web-based tool to facilitate self-screening for aquatic resources by applicants desiring this information.

This new approach utilizes mapped resource layers that DNR will provide to applicants to guide their work in performing site screening for aquatic resources. The Screening Tool can be found at the following link:

<https://maryland.maps.arcgis.com/apps/webappviewer/index.html?id=1c1095e641c541d8aa6588ef6c1b23c8>



If your funding source or agency requires a fisheries screening response from MDDNR, you can provide a screenshot of the self-screening tool site with the relevant data layers shown and include this with your application package which should provide adequate proof that the project location has been screened for potential fisheries impacts.

We have included the Department's Sensitive Species Project Review Area data layer (records of rare, threatened or endangered species present) in this tool as a planning aid. However, for detailed information concerning RT&E species the Department's Natural Heritage Program must be contacted. The absence of a Sensitive Species Project Review Area polygon at project site is not necessarily proof that no RT&E species could be present given delays in updating the data layer with new information. We would recommend continuing to contact the Natural Heritage Program for current information regarding a project location.

Under this new self-serve approach, applicants will no longer be completely dependent on DNR's Environmental Review Program staff for responses to fisheries screening requests. However, under special circumstances for example, if justification is provided requiring a written pre-screening letter from MDDNR (above and beyond the normal request to coordinate with DNR) as part of their permit application package or other planning requirements, then MDDNR Environmental Review can provide this service. Any requests for a letter from DNR must include a project description, site map and the results of the requester's resource scoping of the project site using the screening tool. Additionally, we recommend that aquatic resource scoping work conducted for large complex projects, NEPA projects, selected mitigation banks, and other projects with long or extensive planning or permitting phases be run by our office in draft form for the opportunity to provide potential additional information or edits.

If you have any questions, please feel free to contact me.
Chris

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	<p>Christopher Aadland Environmental Planner Environmental Review Department of Natural Resources 580 Taylor Ave., E-2 Annapolis, MD 21401 410-260-8736 (office) 410-710-7413 (cell) christopher.aadland@maryland.gov</p>
 dnr.maryland.gov	

[Click here](#) to complete a three question customer experience survey.

This MDDNR Aquatic Resources Pre-Screening Tool was developed and intended for the purposes of viewing aquatic resources information within the State of Maryland and for pre-screening projects for potential impacts to Maryland aquatic resources of concern. By indicating your agreement to the terms of use for this website, you warrant that you will not use this website for any other purpose.

The majority of data layers and overall site functionality is provided for use in pre-application screening for aquatic resources. These publicly available data and information pertain mostly to pertinent fisheries resources, although other data layers that may be relevant to the applicant have been included such as the Sensitive Species Project Review Areas (rare, threatened, & endangered species habitats-both aquatic and terrestrial). The data are available for public viewing or map making. However, use of this information should NOT be substituted for a full agency project review or on-site surveys required for environmental assessments and permitting.

We have included the following link to a document which outlines Time of Year restrictions for the most common project activities affecting aquatic resources. For any activities not covered by this document you can contact the MDDNR Environmental Review Program for additional information. (TOY Restrictions Document) In addition, for projects located in tidal waters applicants can screen for potential impacts to oyster leases at the following link: <http://g.sapps.dnr.state.md.us/Aquaculture/index.html>.

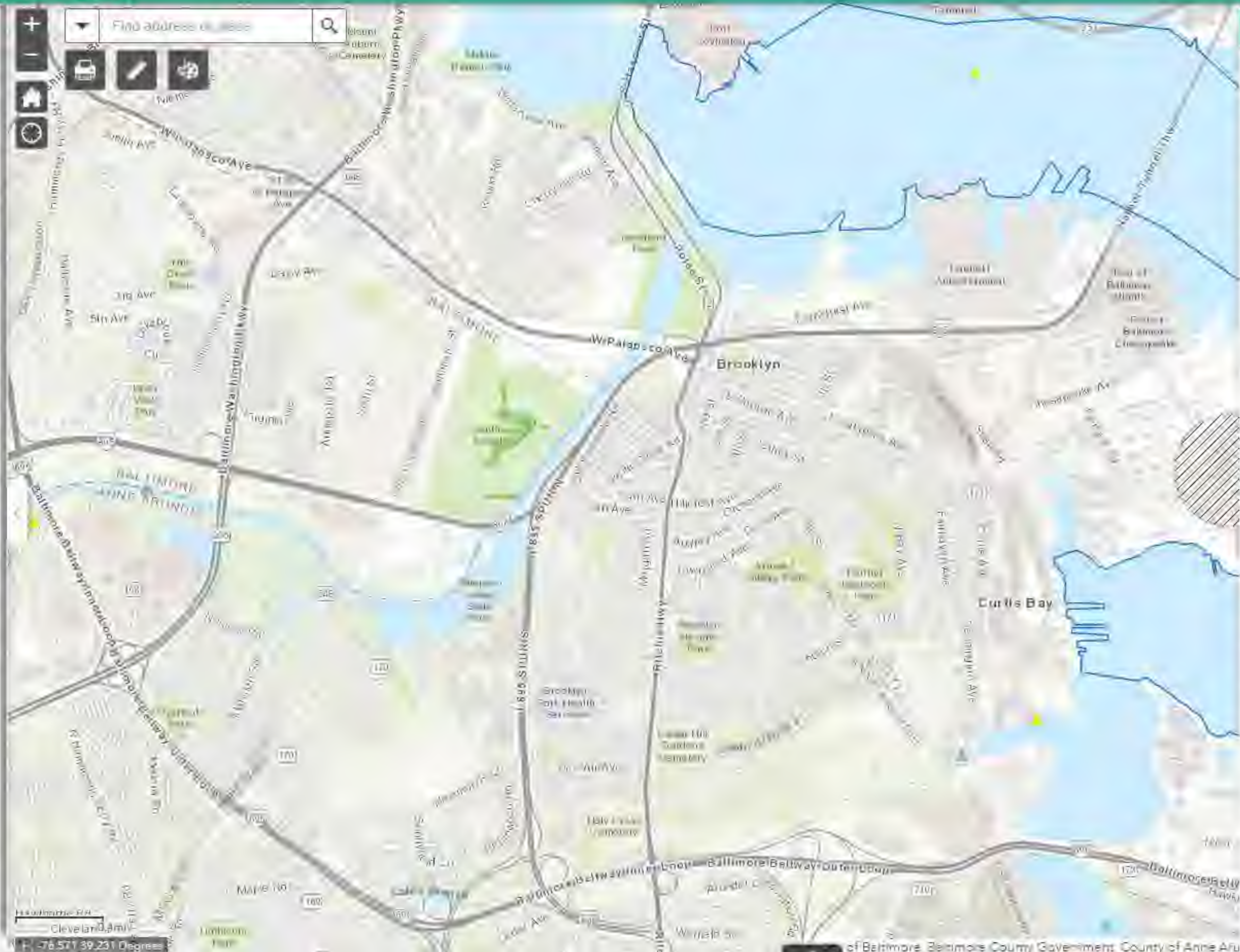
MDDNR continues to support early, pre-project design screening for resources but will no longer be providing this service for applicants in the same manner as we have in the past. Rather, we have established this web-based tool to facilitate self-screening for aquatic resources by applicants requesting this service.

However, under special circumstances for example, if a project's funding source requires a written pre-screening letter provided by MDDNR as part of their permit application package, then the MDDNR Environmental Review Program can provide this service. Anyone indicating that project or site screening with a written response is required, shall submit such request indicating the funding or permit agency that has required same. Such request shall also be accompanied by a narrative description of the proposed activity or project as well as site conditions and natural resources located on the site so that Environmental Review Program staff can ascertain if the request warrants attention.

Unauthorized attempts to upload information or change information on this website are strictly prohibited and may be punishable under the Computer Fraud and Abuse Act of 1986 and/or the National Information Infrastructure Protection Act.

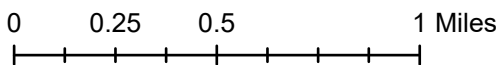
The Department reserves the right at any time to enhance, modify, alter, or suspend online access to the MDDNR Aquatic Resources Pre-Screening Tool and to terminate or restrict your online access at any time without notice.

Contact Info:
MDDNR Environmental Review Unit Phone# 410-260-8335



Layer List		
Layers		
<input checked="" type="checkbox"/>	Sensitive Species Project Review Areas	+++
<input checked="" type="checkbox"/>	Historic Oyster Bottom (NOB)	+++
<input checked="" type="checkbox"/>	Waterfowl Areas	+++
<input type="checkbox"/>	Federal 12-digit HU	+++
<input type="checkbox"/>	Federal 8-digit HU	+++
<input type="checkbox"/>	MD 12-digit Watersheds	+++
<input type="checkbox"/>	MD 8-digit Watersheds	+++
<input type="checkbox"/>	Critical Areas (Towns)	+++
<input type="checkbox"/>	Critical Areas (Counties)	+++
<input checked="" type="checkbox"/>	Anadromous Fish	+++
<input type="checkbox"/>	Trout Population by Watershed 2017	+++
<input type="checkbox"/>	Tier II High Quality Waters 2016	+++
<input checked="" type="checkbox"/>	Submerged Aquatic Vegetation Last 5 years	+++
<input type="checkbox"/>	MDE Surface Water Use Classes	+++
<input type="checkbox"/>	Protected Lands	+++
<input type="checkbox"/>	Wetlands	+++
<input type="checkbox"/>	Floodplain	+++
<input type="checkbox"/>	Sea Level Rise Wetland Adaptation Areas	+++
<input type="checkbox"/>	Sea Level Rise Vulnerability	+++
<input type="checkbox"/>	Hi Resolution Imagery 2015-2017	+++
<input type="checkbox"/>	Parcel Boundaries	+++

Appendix D - Community Facilities



Appendix E - Hazardous Materials

