

IV. ENVIRONMENTAL OVERVIEW AND IMPACT ASSESSMENT

Environmental resources within the Nice Bridge study area have been identified through the preliminary stages of the project planning process (*See Figure 13*). A summary of potential impacts, based upon conceptual engineering, for each alternate can be found in *Table 18*. These resources are described below in relation to the Alternates Retained for Detailed Study. Methodologies to be used for detailed environmental impact assessment can be found in *Appendix D*.

A. Socioeconomic Environmental Resources

1. Land Use & Major Employment Centers

Existing land use within the study area includes commercial, residential, and government uses. The majority of the study area in Maryland is considered medium to high-density residential or commercial use north of US 301, and industrial use south of US 301. The majority of the study area in Virginia is comprised of retail commercial or rural agricultural north of US 301, and retail commercial, residential, or government use south of US 301.

In Maryland, some of the dominant land use features include the Aqua-Land Campground and Marina and the Authority's Nice Bridge Campus facilities north of US 301, and Morgantown Generating Plant south of US 301. In Virginia, the dominant land use includes Barnesfield and Wayside Parks north of US 301, and the Naval Support Facility Dahlgren and Town of Dahlgren south of the highway. Commercial areas along US 301 are common throughout the study area, in addition to residential areas along secondary roadways.

Two major employment centers within the study area are the Naval Support Facility Dahlgren in Virginia and the Morgantown Generating Plant in Maryland.

2. Environmental Justice Populations

In compliance with Executive Order (EO) 12898, "Federal Actions to Address Environmental Justice in the Minority and Low-Income Populations," the Authority has identified potential minority and/or low-income communities within the study area. These communities include the Aqua-Land Campground (MD), and Shiloh Church Road (MD), and Fence Road (VA) residents. Environmental Justice (EJ) outreach conducted to date includes distribution of Alternates Public Workshop announcement post cards to the Aqua-Land General Store and the Shiloh Community Church. Residences along Fence Road do not have a central community facility, however, it was verified that these residences are on the project mailing list and workshop announcement post cards were mailed to them.

Build alternates proposing a new bridge north of the existing structure would potentially impact the Aqua-Land community. The study team will continue outreach to these three communities throughout the project. Additional steps will be taken as well to identify and avoid disproportionately high and adverse effects on minority and low-income communities.

3. Displacements and Right-of-Way

No residential or business displacements are anticipated as a result of any of the alternates retained for detailed study. However, all build alternates would require right-of-way from business/institutional property owners in both Maryland and Virginia.



Figure 13. Natural Environmental Resource Inventory Map.

Alternates to the north of the existing structure (Alternates 4, 5 and 7) would require right-of-way from the Aqua-Land Marina and Campground. The northern build alternates could potentially impact from 2.3 to 5.0 acres of the Aqua-Land Marina and Campground. The northern alternates would also potentially require right-of-way, from 5.9 to 8.7 acres, from Barnesfield and Wayside parks in Virginia.

Alternates to the south of the existing structures (Alternates 2, 3 and 6) do not appear to require right-of-way from the Morgantown Generating Plant but would impact existing Authority facilities along US 301 in Maryland and may require right-of-way from the Aqua-Land Marina and Campground (0 to 1.1 acres), and the Naval Support Facility Dahlgren in Virginia, from 4.3 to 7.1 acres.

4. Parklands

Parkland and recreational opportunities are present in the Nice Bridge study area, including:

- Aqua-Land Marina and Campground (Maryland),
- Barnesfield Park (Virginia), and
- Wayside Park (Virginia).

Both Barnesfield Park and Wayside Park are significant publicly-owned and publicly-used parks and, thus, are protected under Section 4(f) of the U.S. DOT Act. Aqua-Land is privately-owned and, as such, is not protected by Section 4(f). Barnesfield Park is also a Land & Water Conservation Fund (LWCF) protected park and, therefore, impacts to this park are subject to Section 6(f)(3) of the Land and Water Conservation Fund Act of 1965. On-going coordination with King George County, the Department of Conservation and Recreation, and possibly the National Park Service is needed to confirm if Wayside Park is protected under Section 6(f).

Alternates to the north of the existing structure (Alternates 4, 5 & 7) will impact approximately 5.9 to 8.7 acres of Barnesfield Park and Wayside parks collectively. Coordination with local officials will continue throughout the planning study to ensure impacts have been minimized to the greatest extent possible to these parkland and recreational facilities.

5. Growth Implications

Development and travel demand may increase in the vicinity of the project facility. During the Detailed Studies phase of the project, future travel demand under build conditions and the Indirect and Cumulative Effects of the project will be evaluated and appropriate mitigation measures identified to address any negative impacts that are identified.

B. Environmental Resources

1. Aquatic Resources

Several aquatic resources are located within the study area, including the Potomac River and associated tributaries, submerged aquatic vegetation (SAV), wetlands, 100-year designated floodplains, oyster bars, Chesapeake Bay Critical Areas (Maryland) and Chesapeake Bay Preservation Areas (Virginia). The majority of potential impacts to all aquatic resources would occur within the immediate vicinity of the existing structure and would not have a significant effect on other water resources located elsewhere in the study area. Methods to address vessel collision via a longer main span with larger piers, installation of fender systems, and/or protection islands have not been defined at this point in the project process. These methods would result in additional impacts to aquatic resources, which will be determined

in the Detailed Study phase of the project. The environmental impacts resulting from the potential demolition of the existing bridge will be further evaluated during the detailed study phase.

a. Waters of the U.S. (Streams and Wetlands)

All of the build alternates would traverse the Potomac River and any associated tributaries within the immediate vicinity of the existing bridge. Impacts to streams within the study area range from 500 to 800 linear feet. In addition, impacts to these streams could potentially affect water quality and aquatic habitat within the watersheds.

Both palustrine and riverine wetlands have been identified within the study area using National Wetland Inventory (NWI) mapping, DNR wetland mapping (Maryland only), and windshield surveys. This information has been combined with field reconnaissance to determine the extent of wetland impacts for all build alternates retained for detailed study; impacts to wetlands within the study area are anticipated to be less than one acre.

b. Floodplains

The build alternates are anticipated to impact approximately 2.1 to 3.2 acres of 100-year floodplains.

c. Submerged Aquatic Vegetation (SAV)

The Maryland Department of Natural Resources (DNR), in coordination with the Virginia Institute of Marine Science (VIMS) Submerged Aquatic Vegetation (SAV) mapping for 2005, indicated that SAV is present along:

- shoreline of the Lower Potomac River between Lower Cedar Point and Waverly Point;
- Allens Fresh;
- Pasquahanza Creek; and,
- Waverly Creek.

Further coordination will be necessary to determine the extent in which SAV will be impacted by any of the build alternates. The environmental document will provide the results from the SAV impact analysis for all alternates.

d. Aquatic Life

The Virginia Department of Game and Inland Fisheries indicates the Potomac River and Gambo Creek are designated Anadromous Fish Use Areas. The Maryland Department of Natural Resources (DNR) has also documented anadromous fish species spawning in many Lower Potomac River mainstem that are within the study area. Coordination with DNR indicates that anadromous fish species may be present adjacent to the study area, including:

- yellow perch (*Perca flavescens*),
- white perch (*Morone Americana*),
- herring species (*Alosa sp.*), and
- striped bass

Alternates to the north of the existing bridge (Alternates 4, 5 and 7) have the potential to impact anadromous fish species due to the alternate's proximity to spawning areas.

As required under the Magnuson-Stevens Fishery Conservation & Management Act (MSA), an Essential Fish Habitat report will be completed and incorporated into the environmental document as a separate and distinct section. Juvenile and adult summer flounder, and juvenile bluefish are likely to occur in the project area, and impacts to these species, along with their prey species which include alewife, blueback herring, American shad and white perch, will be covered in the EFH assessment.

As the project progresses, methods to protect finfish during construction activities (e.g., pile-driving operations, subaqueous blasting, etc.) will be pursued as part of developing measures to avoid, minimize, and mitigate impacts on aquatic life resources.

The shortnose sturgeon (*Acipenser brevirostrum*), a federally protected species, has been documented as a transient species in the Potomac River. However, records do not indicate sturgeon spawning in study area waters, which generally takes place from March 1 through June 15. As required under Section 7 of the Endangered Species Act, consultation with the National Marine Fisheries Service, Protected Resources Division will be conducted.

In addition to fish species, DNR and National Oceanic & Atmospheric Administration (NOAA) data indicate the presence of eight natural oyster bars within the study area. However, none of these are within close proximity of the existing structure, and direct impacts to these oyster bars from the build alternates are not anticipated.

2. Terrestrial Habitat and Wildlife

The majority of forested tracts and Forest Interior Dwelling Species (FIDS) are located within the inland portion of the study area and will not be significantly impacted by any of the build alternates. Forest impacts associated with the Alternates Retained for Detailed Study are expected to range from 0.4 to 1.9 acres. Of these forest impacts, none are anticipated to be impactful to potential FIDS habitat. As detailed studies are conducted, coordination will continue with the Maryland Department of Natural resources and the Virginia Department of Game and Inland Fisheries with respect to the assessment of and impacts to wildlife in Maryland and Virginia, respectively.

3. Chesapeake Bay Areas

Through coordination with Maryland DNR, areas just north and south of US 301 at the Nice Bridge in Maryland were identified as being within the Chesapeake Bay Critical Area (Critical Area). It is anticipated that approximately 10.1 to 14.0 acres of Critical Area will be impacted by the build alternates. In order to meet all State and local Critical Area regulations, including completion and submission of the Critical Area Commission Project Application Checklist, critical area impacts will be evaluated and addressed.

Similarly, a portion of the study area encompasses portions of Chesapeake Bay Preservation Area. It is anticipated that approximately less than one acre of these areas will be impacted by the build alternates. These impacts will be evaluated and addressed to meet all Virginia and King George County regulations.

4. Rare, Threatened and Endangered Species

Coordination with the US Fish and Wildlife Service (FWS), DNR, the Virginia Department of Conservation and Recreation (VDCR), Virginia Department of Game and Inland Fisheries (VDGIF) and other interested parties indicated the presence of Federal and State listed animal and plant species within the study area. Bald eagle nests and an associated concentration zone (Virginia) have been identified in the study area, primarily to the north of the existing structure. Based on a 50-foot buffer of Bald Eagle Concentration Zone areas, no direct impacts to Bald Eagle nesting areas or any other rare, threatened or endangered species (State or Federal) habitat is anticipated. State law requires that appropriate protection measures of these zones be incorporated into actions taken by state agencies. Specific protection measures depend on site conditions, planned activities, nest history and other factors.

The Virginia Department of Conservation and Recreation, on behalf of the Virginia Department of Agriculture and Consumer Services, has indicated no documented state-listed plants or insects, nor State Natural Area Preserves under their jurisdiction, would be impacted by the project.

In addition, a waterbird colony has been documented under the existing Nice Bridge during breeding season. Waterbird colonies are generally protected during the breeding season within a 0.25 mile radius of their colony location. The open waters to the north and south of the existing structure on the Potomac River are known historic waterfowl concentration areas. Therefore, impacts to these colonies would be similar for all of the build alternates.

Additional steps will be taken with the appropriate officials to further identify and minimize impacts (including work prohibitions during critical times such as breeding seasons) to all threatened, endangered and sensitive species located within the study area.

5. Soils

Prime farmland soils and Soils of Statewide Importance were identified within the study area, located both north and south of the existing structure in both Maryland and Virginia. Coordination consistent with the requirements of the Farmland Policy Protection Act (FPPA) will be completed, if required. Impacts to Prime Farmland and Soils of Statewide Importance would potentially range from 1.6 to 2.9 acres for the build alternates. During the detailed study phase, geologic formations and mineral resource activities will be evaluated.

6. Hazardous Materials

An Initial Site Assessment (ISA) has identified 29 properties with the potential for environmental concern within or adjacent to the study area. Each of these 29 properties was assigned a potential contaminate value of high, medium/high, medium, or low based on property operations, presence of underground storage tanks and/or listing on an environmental database (i.e., National Priority List, Maryland State Priorities List, CERCLIS, RCRA, Emergency Response Notification System, Toxic Release Inventory System, etc.). Two sites were classified as having a high potential contaminant value, four sites with a medium/high potential contaminant value, 19 sites with a medium potential contaminant value, and four sites with a low potential contaminant value. "No further action" was recommended for 23 properties due to the limited likelihood of impact, while "No further action at this time" was recommended for five properties. If it is later determined that these sites will be impacted, additional reviews will be necessary. A Preliminary Site Assessment (PSA) was recommended at one site, the Naval Support Facility Dahlgren, due to the high contaminant value and the likelihood that it would be impacted by one or more of the proposed alternates.

As a result of test bombing exercises conducted at the Naval Support Facility Dahlgren within the last 90 years, there is the potential for unexploded ordnances (UXOs) both north and south of the existing Nice Bridge within the Potomac River and along both state shorelines. Initial coordination has been conducted with the Naval Support Facility Dahlgren staff to identify the process for determining whether UXOs are within the vicinity of the build alternates. Based on this coordination, as part of any future design and construction efforts, the Authority is responsible for identifying any UXOs for the project. If UXOs are identified, the U.S. Navy will be responsible for UXO removal and dismantling.

The existing bridge may contain lead paint. Repainting efforts for the existing bridge would be increased because of this factor adding to the cost of retaining this bridge versus replacement or taking it out of service. The environmental impacts resulting from the potential demolition of the existing bridge will be further evaluated during the detailed study phase.

C. Cultural Resources

1. Historic Properties

In 2001 the Governor Harry W. Nice Memorial Bridge was determined eligible for listing on the National Register of Historic Places (NRHP). Three other structures in the Maryland portion of the study area are also eligible for the NRHP, including Edge Hill Farm (CH-148), Marshall's Rest (CH-140), and Wise's Market and Service Station (CH-568). Two other previously identified structures, the George Purcell House (CH-737) and the Lee Graves property (CH-181) are listed by MHT; however, they are awaiting evaluation for listing on the NRHP. In addition to the previously identified sites, the Authority has identified 15 additional properties within the Maryland portion of the study area that are over 50 years of age, and will need to be evaluated according to NRHP criteria.

According to the Virginia Department of Historic Resources' Data Sharing System (DSS), one property, the Naval Support Facility Dahlgren (DHR ID# 048-0104), has been identified as potentially historic within the Virginia portion of the study area. This property as a whole has not been determined eligible for the National Register of Historic Places (NRHP), however portions of the property, namely the housing facilities, were evaluated and recommended as eligible. Portions of the naval base have been proposed as a historic district, however official boundaries have not been determined and no formal decisions have been made. The Authority will continue to coordinate with the Virginia Department of Historic Resources (VDHR) regarding the boundaries of the proposed historic district.

With the exception of the No-Build Alternate, the Nice Bridge could potentially be impacted by all of the Alternates Retained for Detailed Study. In addition, it is anticipated that build alternates located to the south of the existing structure (Alternates 2, 3 and 6) would impact the potentially historic Naval Support Facility Dahlgren. Prudent and feasible alternatives that avoid the use of a historic site will be examined in accordance with Section 4(f) of the USDOT Act.

2. Archeology

An archeological sensitivity assessment has identified several areas in undeveloped portions of the study area where there is moderate to high potential for prehistoric and historic archeological sites, particularly along river terraces and level piedmont uplands adjacent to tributary streams. Further archeological investigations will be performed in the next stage of the project planning process. Coordination with MHT and VDHR will continue throughout the study in accordance with Section 106 of

the National Historic Preservation Act to determine the effect of the various alternates on historic standing structures and archeological resources.

3. Tribal Organizations

Coordination with Native American tribal organizations is also being conducted as part of the Nice Bridge Improvement Project. Through coordination with the Virginia Council on Indians and MHT, it was determined that there are no known federally-recognized tribes within either the Virginia or Maryland portion of the Nice Bridge study area. However, coordination with the Maryland Commission on Indian Affairs identified a state tribal presence – three Piscataway tribe bands that are within the vicinity of the Nice Bridge study area. They are the Piscataway Indian Nation, Inc., the Cedarville Band of Piscataway Indians, and the Piscataway Conoy Confederacy and Sub-Tribes, Inc. The study team is in the process of coordinating with each of these bands to provide a brief background on the location and purpose of the Nice Bridge Improvement Project and to answer or follow-up on any questions or requests for information that they may have.

Outreach efforts will continue throughout the study to identify federally recognized tribes, including non-resident tribes, which may be interested in the project and invite them to participate as appropriate.

Table 18: Summary of Potential Environmental Impacts

Resource	Unit	Alternates Retained For Detailed Study						
		No-Build	Alternate 2	Alternate 3	Alternate 4	Alternate 5	Alternate 6	Alternate 7
Historic and Cultural Resources								
Historic Properties	no.	0	2	2	1	1	2	1
Recorded Archeology Sites ¹	no.	0	0	0	0	0	0	0
Community Resources								
Business/Institutional Displacements	no.	0/0	0/0	0/0	0/0	0/0	0/0	0/0
Residential Displacements	no.	0	0	0	0	0	0	0
Business/Institutional Right-of-Way ²	acres	0	1.1/4.3	1.1/4.3	2.3/5.9	2.3/5.9	0/7.1	5.0/8.7
Residential Right-of-Way	acres	0	0	0	0	0	0	0
Parkland/Recreational Facilities	no.	0	0	0	3	3	0	3
Low-Income/Minority Populations	no.	0	0	0	1	1	0	1
Natural Environmental Resources								
Streams	linear ft.	0	< 800	< 800	< 750	< 750	< 700	< 500
Wetlands ³	acres	0	< 1	< 1	< 1	< 1	< 1	< 1
Chesapeake Bay Critical Areas (MD)	acres	0	10.1	10.1	13.7	13.7	14.0	10.5
Chesapeake Bay Preservation Areas (VA) ⁴	acres	0	< 1	< 1	< 1	< 1	< 1	< 1
Oyster Bars	no.	0	0	0	0	0	0	0
100-Year Designated Floodplains	acres	0	3.2	3.2	3.0	3.0	2.7	2.1
Submerged Aquatic Vegetation (SAV)	acres	0	TBD	TBD	TBD	TBD	TBD	TBD
Rare, Threatened and Endangered Species ⁵	no.	0	0	0	0-1	0-1	0-1	0-1
Forest	acres	0	1.7	1.7	0.4	0.4	1.9	1.6
Forest Interior Dwelling Species (FIDS)	acres	0	0	0	0	0	0	0
Prime Farmland Soils/Soils of Statewide Importance	acres	0	1.6	1.6	1.8	1.8	1.6	2.9

¹ Additional Testing Will Be Conducted Within The Proposed Limit-of-Disturbance to determine the presence, if any, unrecorded archeology sites.

² Business Right-of-Way impacts consist of impacts to the Aqua-Land Marina and Campground. Institutional Right-of-Way requirements consist of Dahlgren, county-owned property and parkland (e.g., Wayside and Barnesfield Parks).

³ Impacts based on existing wetland data. Impacts will be further refined based on wetland field studies to be conducted later during the planning process.

⁴ Impacts based on a 100-foot buffer of tidal area within the Limit-of-Disturbance of the Virginia portion of the study area.

⁵ Impacts based on 50-foot buffer of Bald Eagle Concentration Zone area(s). No direct impacts to Bald Eagle nesting areas or any other rare, threatened or endangered species (State or Federal) habitat is anticipated.

Note: Limit-of-Disturbance does not include potential stormwater management areas, bridge pilings, vessel collision protection methods, vehicle inspection stations, or the campus area master plan improvements.

TBD – To be determined during detailed studies.