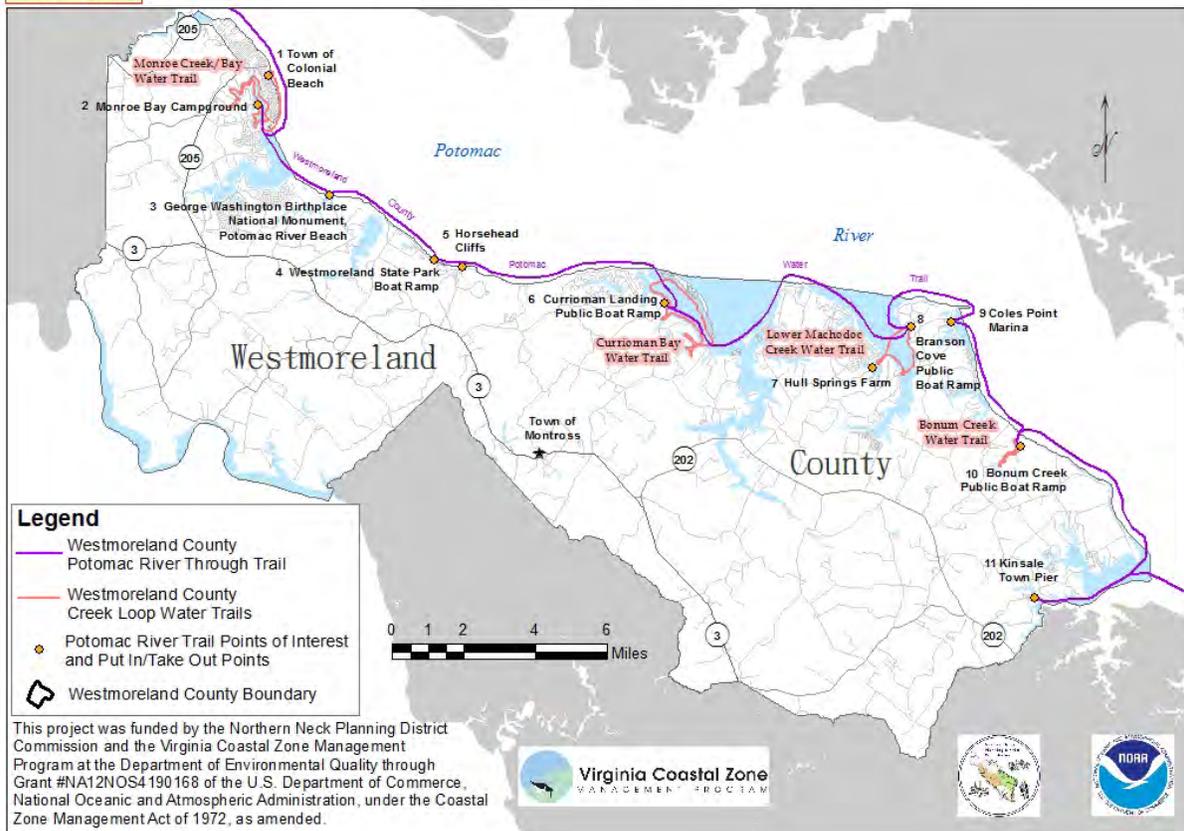


Northern Neck Planning District Commission Virginia Coastal Zone Management Program PDC Technical Assistance Grant FY12, Task 45 Final Report

Please Click on the Text Labels on the Map to Learn More

Westmoreland County Water Trails



This project was funded by the Northern Neck Planning District Commission and the Virginia Coastal Zone Management Program at the Department of Environmental Quality through Grant #NA12NOS4190168 of the U.S. Department of Commerce, National Oceanic and Atmospheric Administration, under the Coastal Zone Management Act of 1972, as amended.

Northern Neck Planning District Commission
 Coastal Technical Assistance Grant FY12, Task 45

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I. Coastal Management Support

Northern Neck Planning District Commission staff participated in the Potomac River Water Trails meeting held by the National Park Service on May 7, 2013, at George Washington Birthplace National Monument. NNPDC staff, as well as staff from the Northern Neck Tourism Commission, attended. NNPDC staff informed those present of the water trail development from the last VACZM grant year (FY11) for Westmoreland, Richmond, and Lancaster Counties and the upcoming development of additional water trails for Westmoreland and Lancaster from this year's VACZM PDC Technical Assistance Grant (FY12). NNPDC staff notified the group that the Northern Neck Tourism Commission is cooperating and helping to promote the Northern Neck Water Trail system. NNPDC staff informed the group present of a marina in the Colonial Beach area that has begun a canoe and kayak rental business, which is on the Monroe Bay/Creek water trail. NNPDC staff plan to continue to assist in the development of the Potomac Segment Plan to help raise use and awareness of the Captain John Smith Water Trail and the Star Spangled Banner Trail that follow the Potomac River.

NNPDC staff also reviewed for Coastal Zone Management Consistency the Maintenance Dredging of the Federal Navigation Channel in the Little Wicomico River (in Northumberland County, Project 13-108F) and the Shandy Hall Shoreline Stabilization Project (in Richmond County on the Rappahannock River, Project 13-084F). In both cases, NNPDC staff reviewed the provided project documents and agreed that the project was consistent with the VACZM goals and priorities. The Little Wicomico River has been dredged in the past and the dredge spoils placed in the same place as the last time it was dredged, so the impacts on this project were negligible compared to the benefits. The Shandy Hall Shoreline Stabilization Project proposes to use breakwaters and living shorelines to control erosion, which have fewer environmental impacts than traditional shoreline hardening practices (such as rip rap or bulkheads).

A. Compendium of Maps

1. Lancaster County

Lancaster County requested a map of several tax parcels for an undisclosed project that needed 250 acres of land with a portion of that land waterfront. NNPDC staff located the tax parcels in question, created an aerial map that depicts the location of the tax parcels, roads, and surrounding water bodies, and delivered this map electronically to Lancaster County staff. This map is shown on the next page.

NNPDC staff were contacted by staff from the Center for Watershed Protection about a watershed study and report the center was conducting for the Town of Kilmarnock in Lancaster County. NNPDC staff discussed some of the environmental issues in the area of the Town that had been brought to our attention. The Town of Kilmarnock is on a high elevation knoll and therefore water drains from Rt. 3 towards the Corrotoman River on the west and to the Chesapeake Bay via Indian and Dyer Creeks to the east. Therefore, Kilmarnock is at the headwaters of three watersheds, and there has been significant scouring of stormwater channels from impervious areas located in Kilmarnock that have impacted the headwater streams flowing from the town. Center for Watershed Protection staff asked if NNPDC staff might have any insight into the problem. NNPDC staff, who through previous VACZM grant work with Blue Green Infrastructure Planning, had identified soils with steep slopes and high erosive potential in

Lancaster County and mapped them for a presentation to the Lancaster County Planning Commission. NNPDC staff explained the Sloping Sandy Land and the Steep Sandy Land soil categories from the USDA Soil Survey are found along all the streams in Lancaster County. NNPDC staff then created a Sloping Sandy Land and the Steep Sandy Land soil map that was sent to the Center for Watershed Protection staff to explain the soils and their distribution around the Town of Kilmarnock. When the Kilmarnock Watershed Assessment Report was presented to the Town of Kilmarnock, NNPDC staff received a copy of the report. The map that NNPDC staff produced showing Sloping Sandy Land and Steep Sandy Land was included in the report. A copy of that map, extracted from the Kilmarnock Watershed Assessment Report, follows the tax map aerial photograph map on the next page.

Lancaster County staff contacted Northern Neck Chesapeake Bay Public Access Authority (NNCBPAA) staff for assistance in preparing a grant application for the Virginia Department of Game and Inland Fisheries (VDGIF) Public Boating Access Grants to Localities program. Lancaster County had recently received a donation of waterfront land on Dyer Creek from a citizen, and the county had planned to construct a public power boat access point on the site. NNCBPAA staff received materials from Lancaster County detailing the location of the project, the components of the proposed project, the Lancaster Board of Supervisors' funding actions, and the general project outline. NNPDC staff compiled the data into the format required by VDGIF for the grant application, and created four maps to supplement the grant application. The maps created for the grant application included a state location map, a map depicting other public boat ramps within a 50 mile radius of the proposed project, a conceptual plan map, and a conceptual plan map zoomed out to show the proximity to Fleets Bay (and the Chesapeake Bay and John Smith Water Trail). The maps created for the Lancaster County Public Boating Access Grant application are included in the pages following the Sloping Sandy Land and Steep Sandy Land soils map. The grant application was submitted to the Virginia Department of Game and Inland Fisheries by Northern Neck Chesapeake Bay Public Access Authority on behalf of Lancaster County by the due date of September 30, 2013. NNCBPAA staff are hopeful that the project will be funded by VDGIF, as Lancaster County only has two public boat ramps within the county, and none of those access the Chesapeake Bay.

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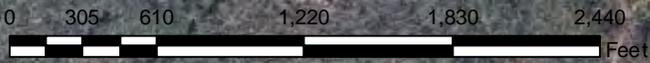
Lancaster County Parcels 23-92, 92A, 92B and 94

Eastern Branch
Corrotoman River



Parcels 23-92, 92A,
92B, & 94
254.739 +/- Acres

Town of
Kilmarnock



This project was funded by the Northern Neck Planning District Commission and the Virginia Coastal Zone Management Program at the Department of Environmental Quality through Grant #NA12NOS4190168 of the U.S. Department of Commerce, National Oceanic and Atmospheric Administration, under the Coastal Zone Management Act of 1972, as amended.

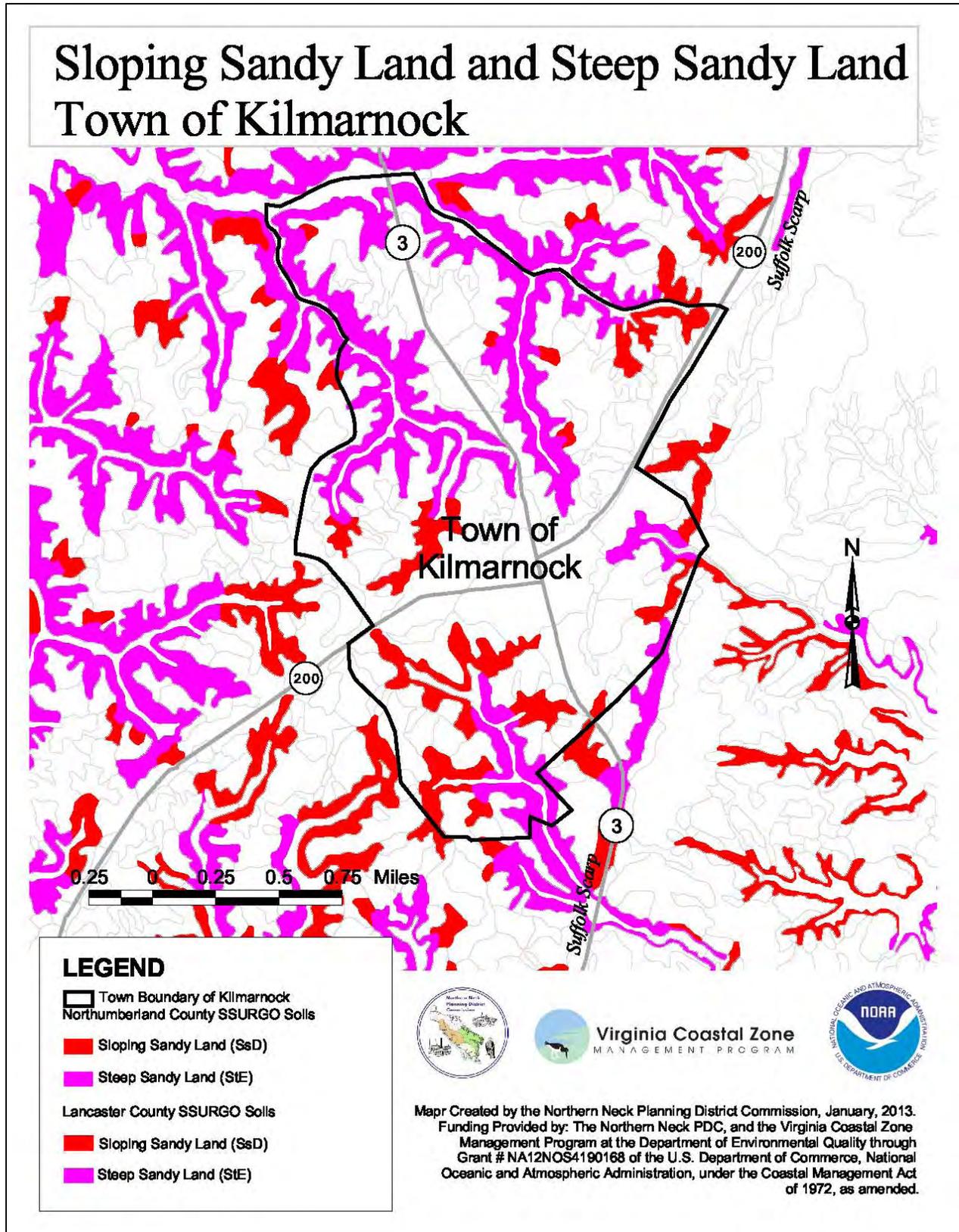
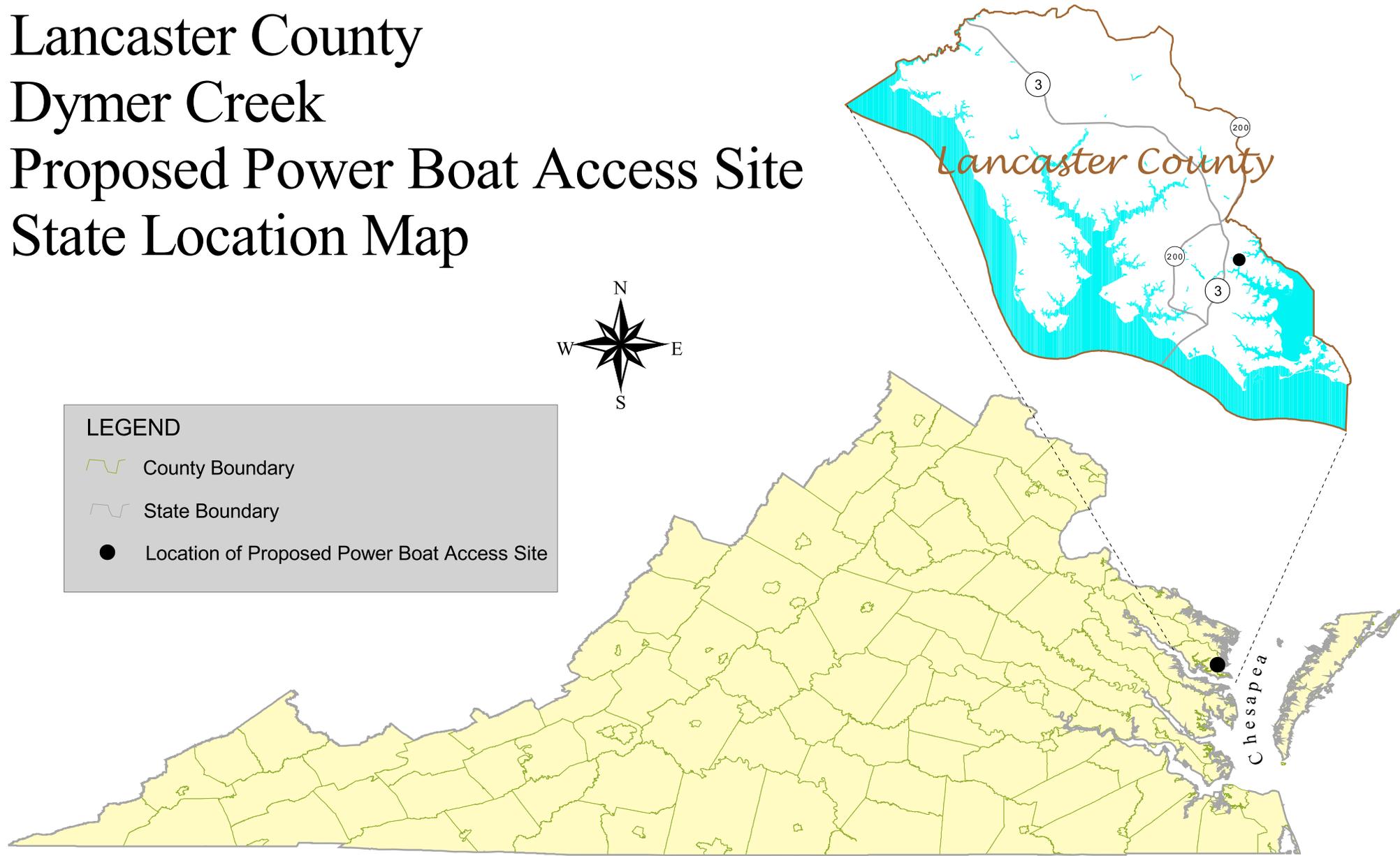


Figure 4. Distribution of *Steep Sandy Land* and *Sloping Sandy Land* in Kilmarnock (NNPDC, 2013).

Lancaster County Dymer Creek Proposed Power Boat Access Site State Location Map

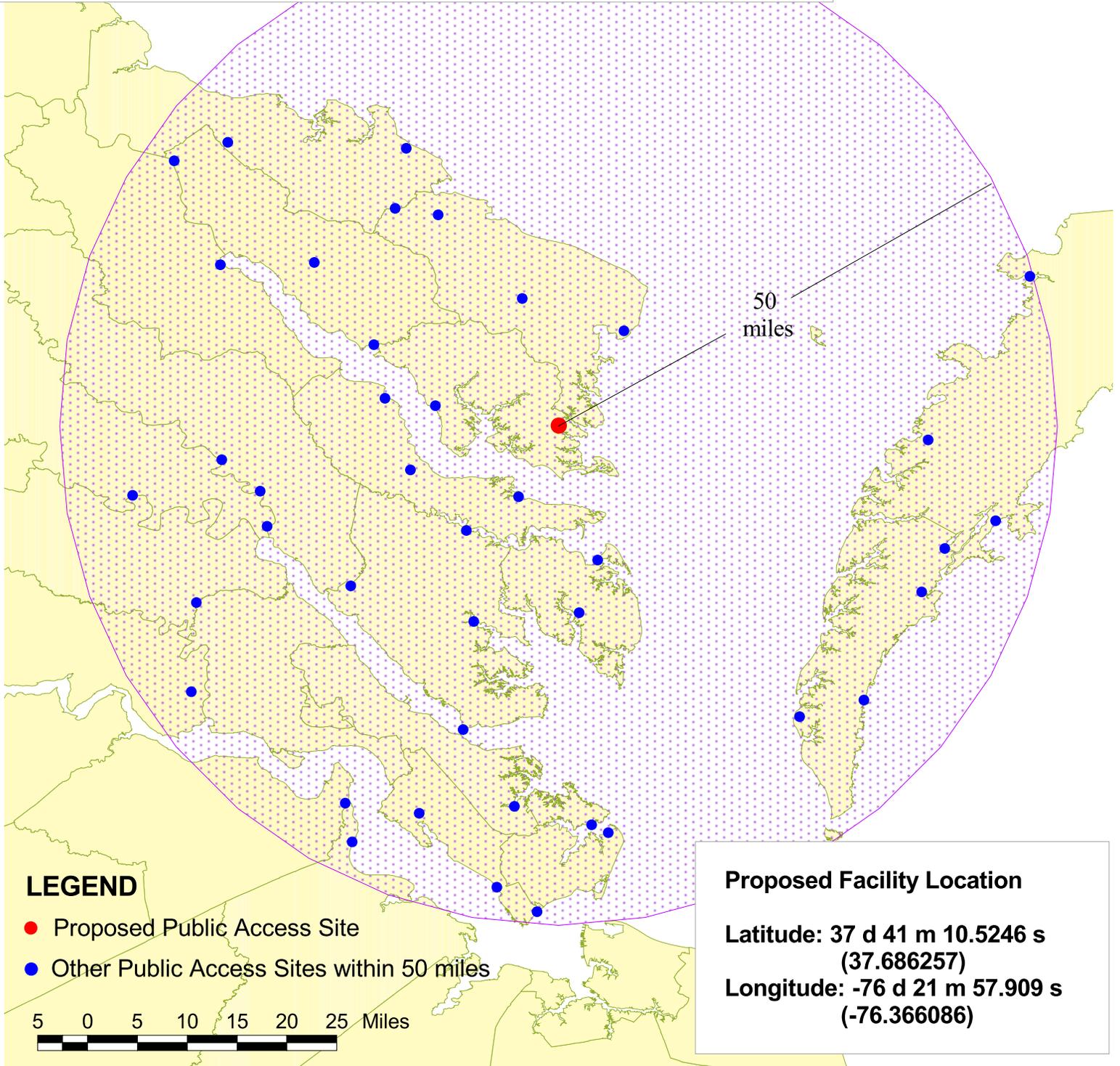
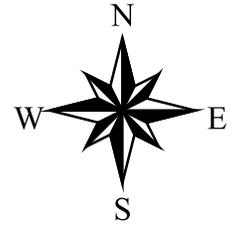


40 0 40 80 Miles

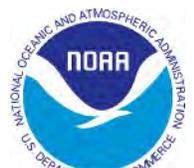


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Location of Other Public Boating Access Sites within 50 Miles of Proposed Access Facility



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Proposed Lancaster County Power Boat Access Site Conceptual Plan

Property to be Gifted to Lancaster County

Gravel Access Road (to be built by County)

35 Space Parking Lot For Vehicles and Trailers



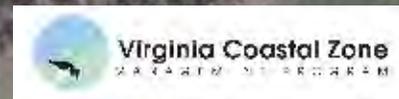
Accessible Portable Toilet

Trash Can

Trash Can

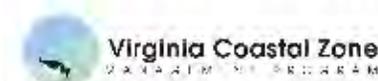
Concrete Boat Ramp

Courtesy Pier



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Proposed Lancaster County Power Boat Access Site Local Map



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2. Richmond County

NNPDC staff assisted Richmond County in 2011 with revising its Comprehensive Plan. NNPDC helped coordinate the revision by the county-appointed Comprehensive Plan Review Committee, as well as assisted with the mapping portion of the plan. Recently, several parcels in the county have been rezoned, and the County Administrator wanted to show those changes in the Comprehensive Plan's Future Land Use Plan Map, which has a current land use shown on the map. NNPDC staff received a list of the parcels that had been rezoned, changed the color of the parcels to match the newly acquired zoning classification, and created a revised map. NNPDC distilled the Adobe PDF of the Future Land Use map and delivered the map to the Richmond County Administrator. The revised Richmond County Future Land Use Map revised by NNPDC staff follows on the next page.

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Richmond County Future Land Use 2020



Legend

-  Rural Village
-  Natural Corridor
-  Town of Warsaw
-  Present Conservation Area

Proposed Future Land Uses

-  Business
-  Low Density Residential
-  Sewered Areas

Current Land Uses

-  Agriculture
-  Business
-  Industrial
-  Residential R-1
-  Residential R-2
-  Residential, Mixed Use R-3
-  Warsaw Growth Area

Revised: August 2013

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3. Westmoreland County

Westmoreland County requested a map of several tax parcels in the Coles Point area of the county. The map was to show the most recent aerial photograph with the outline of the tax parcels the county had identified. The tax parcels totaled approximately 250 acres in area, and a portion of the tax parcel was waterfront. NNPDC staff created the map and delivered it to Westmoreland County staff. The Westmoreland County aerial photograph tax parcel map follows this page.

Westmoreland County staff contacted NNPDC staff and explained that the rescue squads in the western part of the county had been experiencing a higher than average emergency call rate. NNPDC staff then noted that during the 2011 voting redistricting process that the western voting districts in the county had gained population and that the eastern voting districts had decreased population. Since the western part of the county is more proximate to the population centers of Fredericksburg and Washington, D.C., this makes sense, as the commuter region to these cities has expanded in recent years. Westmoreland County staff were considering redrawing the rescue squad service districts to help equalize the number of calls that each rescue squad might receive. To that end, Westmoreland County staff requested two countywide maps; one that shows each of the three rescue squad service areas with the approximate 2010 census population served by each district and the number of E911 structures served by each rescue district. These maps would be used to help inform the county on where the likely rescue squad service area boundary adjustments would be located. These two maps follow the Westmoreland County aerial photograph tax parcel maps.

Westmoreland County staff, in order to add a backup to the county's E911 call dispatch center, agreed to cooperate with the Town of Colonial Beach (who operates their own E911 system) to create a backup Westmoreland County E911 call center in the Town of Colonial Beach. Therefore, in case of damage or non connectivity of the existing E911 dispatch center in the Town of Montross, Westmoreland County would have a backup call center ready nearby in the Town of Colonial Beach to assure dispatch of emergency services throughout the county. In order to have further alternative sources of information for this new backup E911 call center, Westmoreland County requested wall sized maps of the four Westmoreland County fire district service areas. Westmoreland County requested that all roads on the map be labeled with the road name and that the E911 structure address points be shown as well. These maps will be mounted on the walls of the backup E911 call center so that dispatchers can use them to help visualize the location and to assist in routing units to the site of the emergency. Due to file size considerations, there are only two maps shown (note that the text may not be legible as these maps originally were 36 inches in width by 44 inches in length). The two fire district maps follow the rescue squad population and structures served maps.

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Potomac River

Westmoreland County Parcels 26-69 and 76A



Lower
Machodoc
Creek

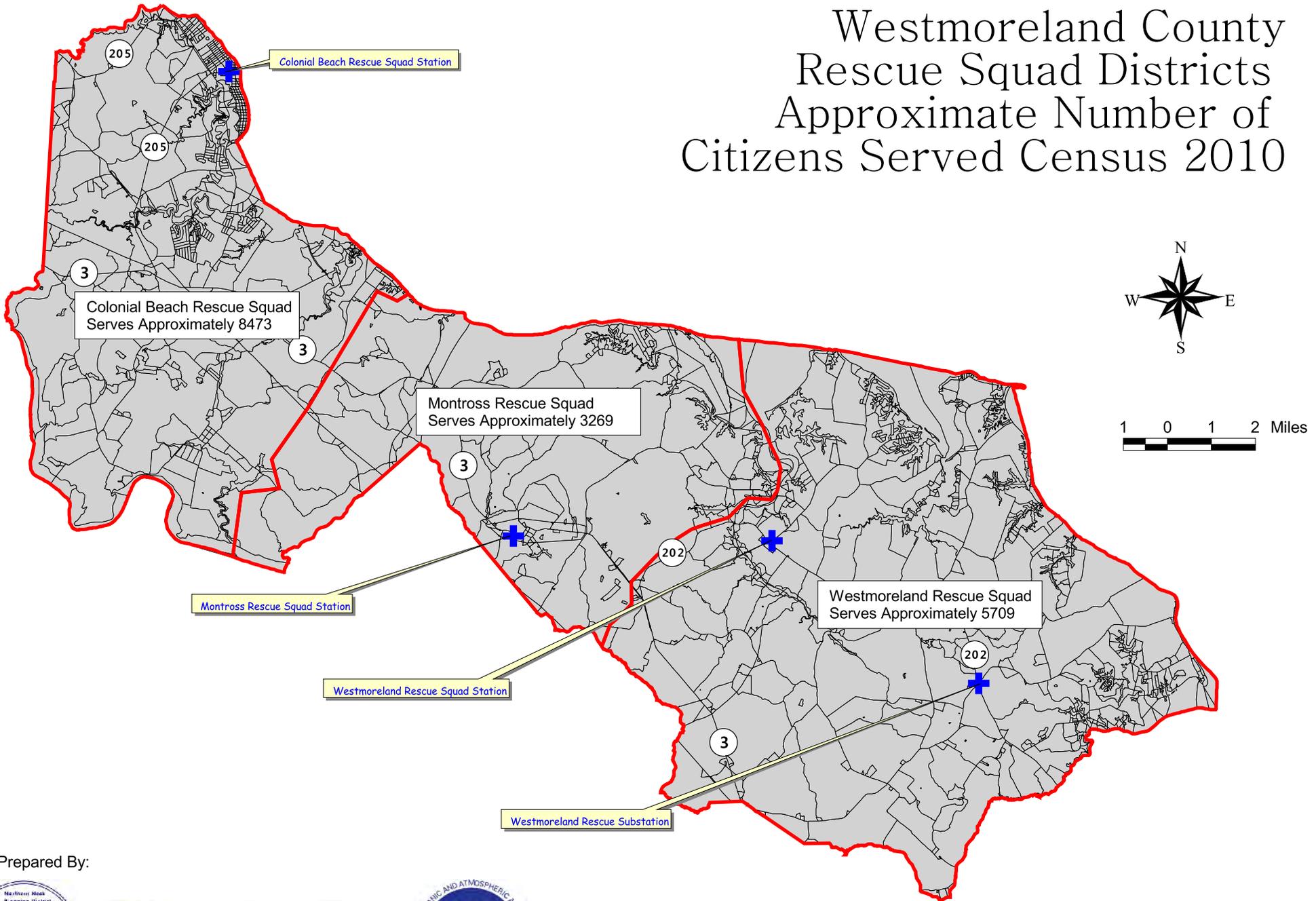
Parcels 26-69, 76A
294.61 +/- Acres
Zoned: A1



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Westmoreland County Rescue Squad Districts Approximate Number of Citizens Served Census 2010



Map Prepared By:



Virginia Coastal Zone
MANAGEMENT PROGRAM

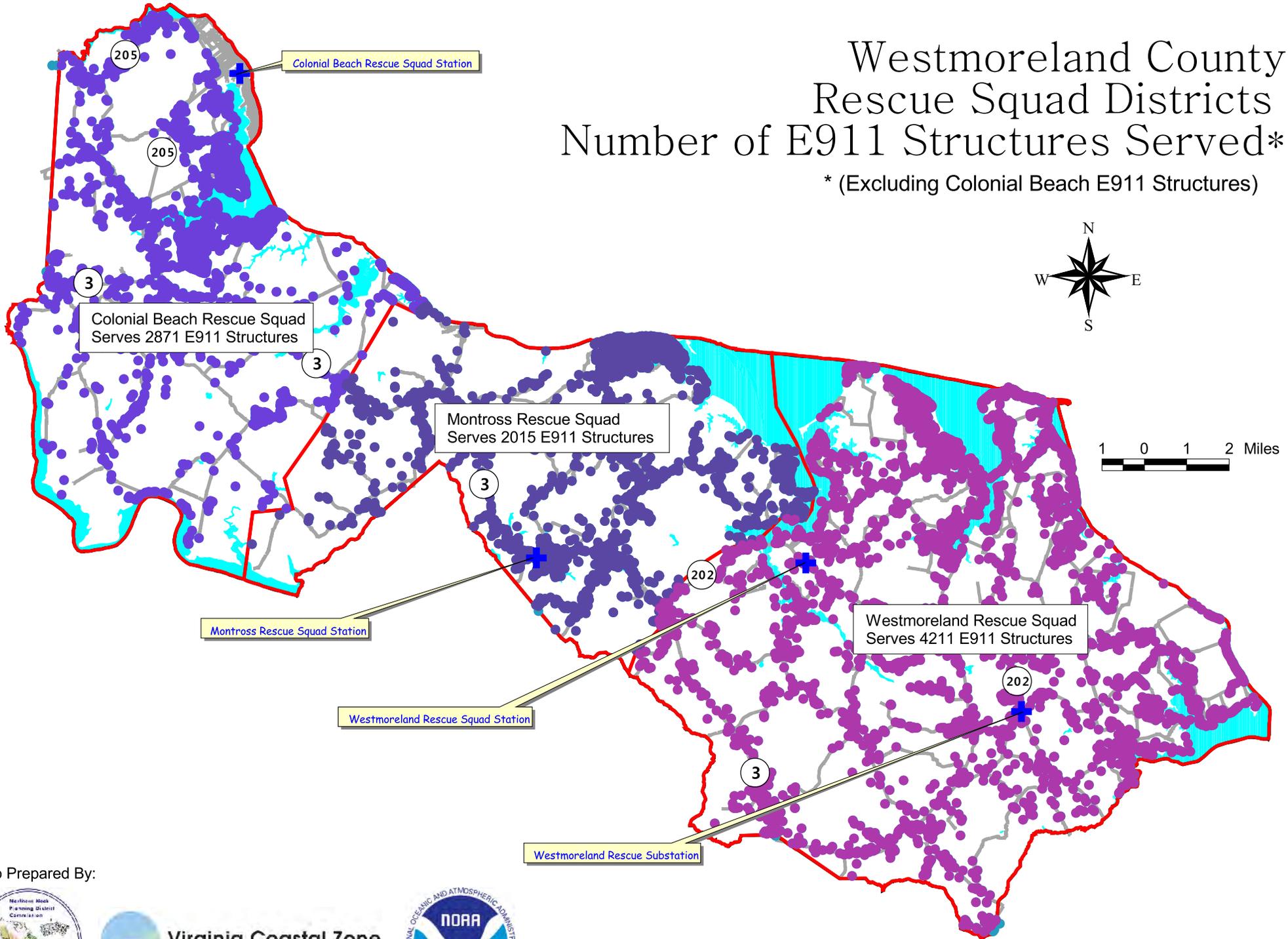


August 2013

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Westmoreland County Rescue Squad Districts Number of E911 Structures Served*

* (Excluding Colonial Beach E911 Structures)



Map Prepared By:



August 2013

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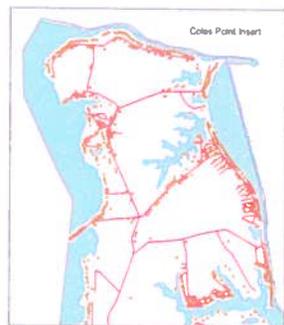
COPLE FIRE DEPARTMENT SERVICE AREA



Coles Point Insert



Kinsale Insert

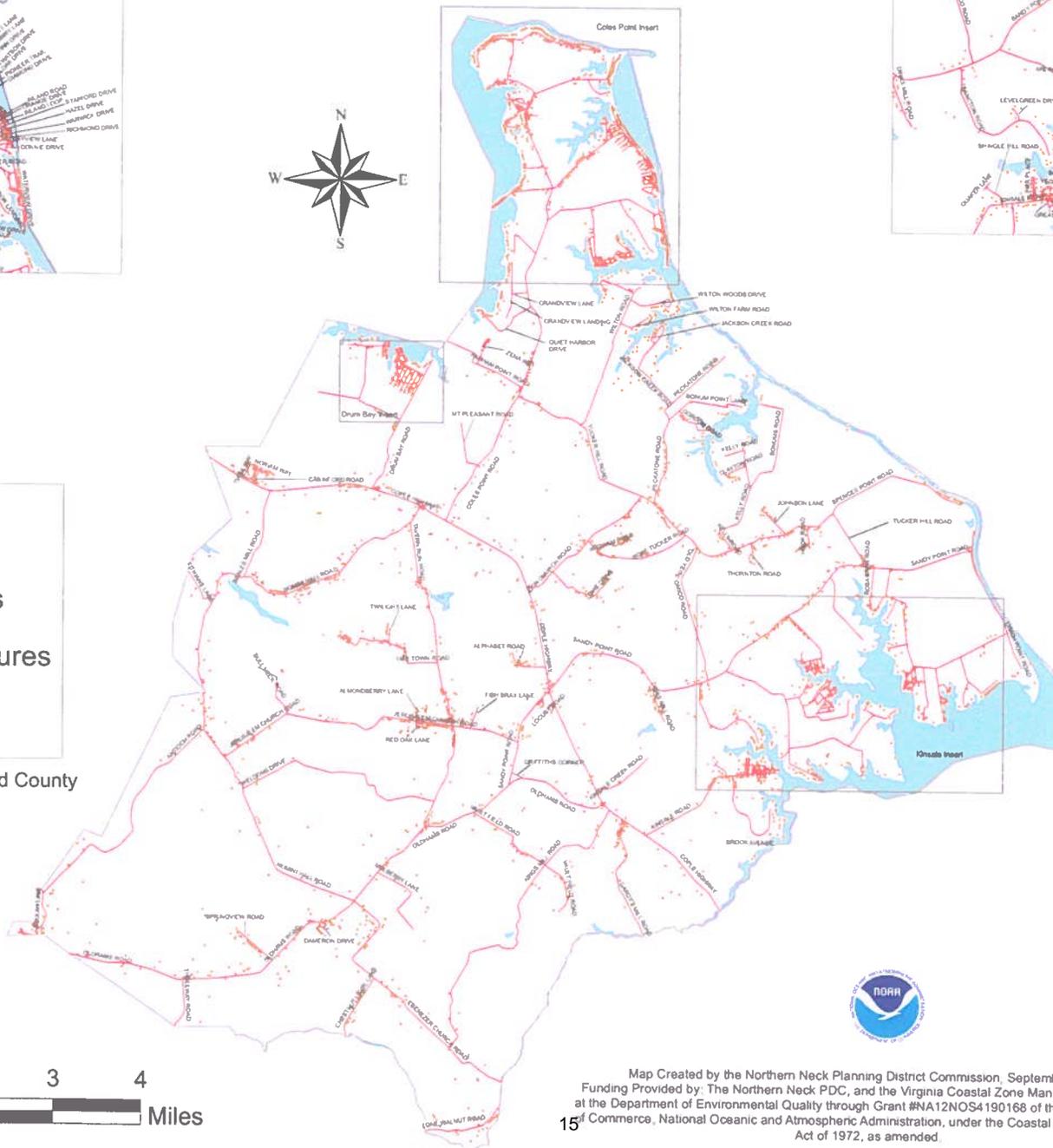


Drum Bay Insert

LEGEND

- E911 Roads
- E911 Structures
- Water

Map prepared for Westmoreland County



Map Created by the Northern Neck Planning District Commission, September, 2013.
 Funding Provided by: The Northern Neck PDC, and the Virginia Coastal Zone Management Program
 at the Department of Environmental Quality through Grant #NA12NOS4190168 of the U.S. Department
 of Commerce, National Oceanic and Atmospheric Administration, under the Coastal Zone Management
 Act of 1972, as amended.



Map Prepared By:



October 2013

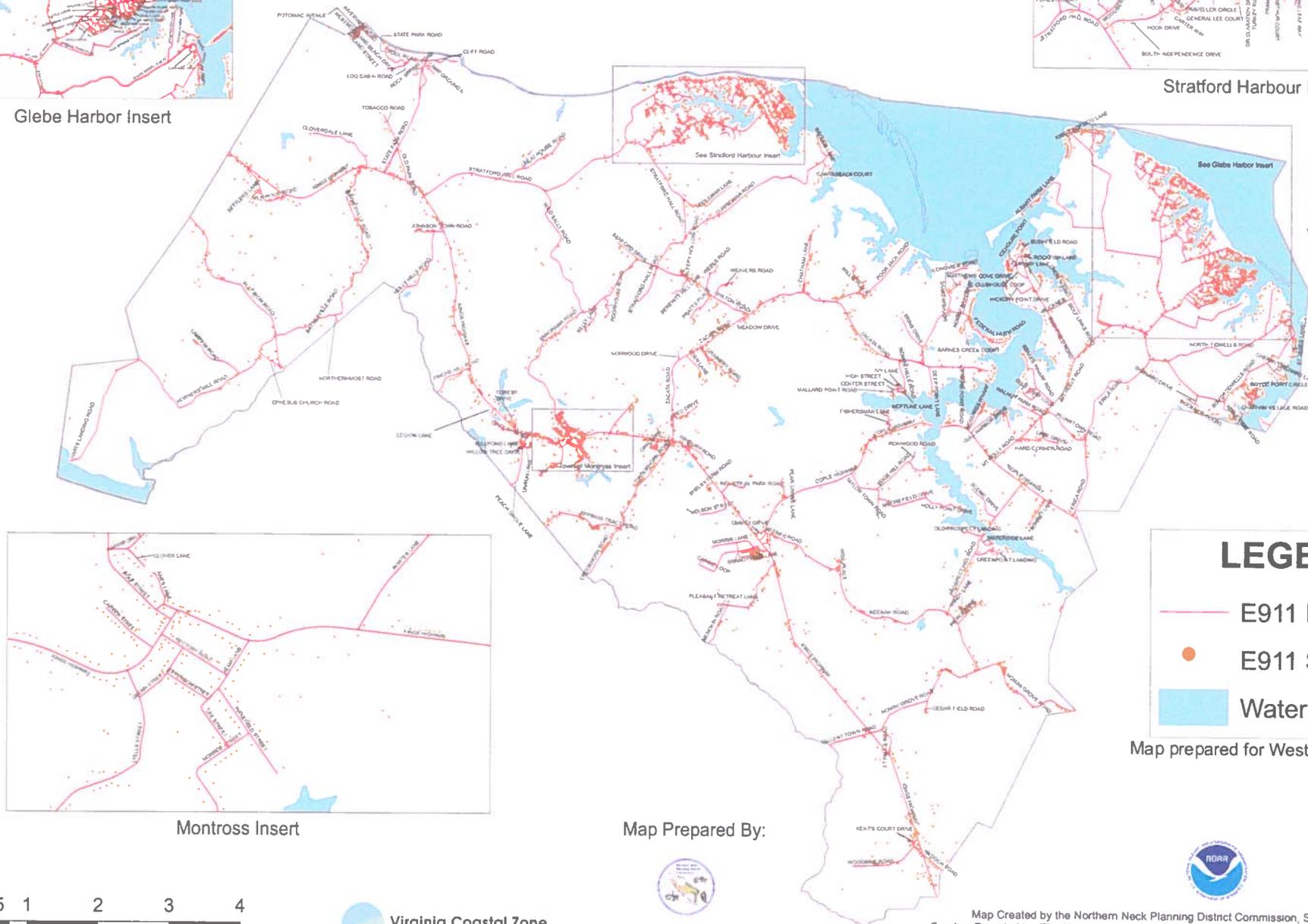
WESTMORELAND FIRE DEPARTMENT SERVICE AREA



Glebe Harbor Insert



Stratford Harbour Insert



LEGEND

- E911 Roads
- E911 Structures
- Water

Map prepared for Westmoreland County



Map Prepared By:



October 16, 2013



Map Created by the Northern Neck Planning District Commission, September, 2013.
Funding Provided by: The Northern Neck PDC, and the Virginia Coastal Zone Management Program at the Department of Environmental Quality through Grant #NA12NOS4190168 of the U.S. Department of Commerce, National Oceanic and Atmospheric Administration, under the Coastal Zone Management Act of 1972, as amended.

II. Local Planning and Coordination

NNPDC staff held a Northern Neck Land Use Administrator's training/local coordination meeting on December 12, 2013. The Commonwealth of Virginia passed legislation that is tightening stormwater controls as well as shifting the permitting of stormwater discharges from the state to the local (county) government. Localities in the Northern Neck currently are involved with stormwater permitting under the Chesapeake Bay Preservation Act; however, the new program increases stormwater permit fees and covers almost all new development activities. The new stormwater regulations require a locality to create a Virginia Stormwater Management Program Authority overseeing and managing the short term runoff during construction activities as well as a long term inspection and maintenance for any stormwater Best Management Practices (BMP's) installed within the jurisdiction. County and NNPDC staff have attended several presentations on the new stormwater regulations by Department of Conservation and Recreation staff and thought it would be helpful to hear about the upcoming changes from another entity, namely, Resource International, Inc., a consulting and engineering firm that does work for several of the counties. For the training portion of the meeting, the staff from Resource International began the presentation by stating that the new stormwater regulations are much more robust than the current stormwater regulations. Whereas, under the old system, only large developments needed elaborate stormwater plans; under the new system, almost every kind of development will require stormwater plans, except for single lot residential development. The calculations that are needed to complete the stormwater permit application include calculating the amount of runoff, determining the amount of reduction in volume required by the regulations and then calculating the nutrient reduction needed on the remaining stormwater flow. The complexity of the stormwater calculations means that many developers may need to hire an engineer to complete the stormwater application for permit coverage. In addition, for larger and more complex developments, county stormwater review staff may need to hire a engineering consultant to properly review the calculations contained in the more complex stormwater permit applications. In addition, the consultant continued, the stormwater fees are going to be much higher, especially considering, in most cases, there were no fees charged in the past. These costs are going to be borne by the developer, and of course, the developer will pass the cost along to the home buyer. There was some discussion about what the regulations define as a common plan of development, and whether phased in subdivision construction could skirt the new rules by claiming each house to be a singly developed lot. County and NNPDC staff noted that if almost all types of residential subdivision would trigger the need for a stormwater permit, with the accompanying engineering work and permit cost, that there could be an unintended consequence of a proliferation of single family residential lots developed individually. The proliferation of single lot development could potentially cause more sprawl and fragmentation in the region than traditionally designed subdivisions. Staff from Resource International indicated that could be the case, but it was all speculation this early in the process. County and NNPDC staff thanked Resource International staff for their presentation and continued with the local coordination portion of the meeting. NNPDC staff presented the framework for the locality funding and staffing plan that would be needed to be formulated by each locality for submission to DCR for the twelve month extension on implementing the local stormwater program. NNPDC staff updated all present on the progress on the VACZM PDC Technical Assistance Grant, and noted progress on individual county projects. NNPDC staff reminded the county staff present to think of upcoming projects that they need or would like to implement that NNPDC staff could include

in the next year (FY13) Technical Assistance Grant from the Coastal Zone Management Program. Several projects were discussed for the counties, and NNPDC staff followed up with county staff after the meeting to help refine the projects for technical assistance projects. The NNPDC tries to do at least one project in each of the four counties of the NNPDC each grant year to balance the benefits from the technical assistance grant to each county.

NNPDC staff held the second Northern Neck Land Use Administrator's training/local coordination meeting on March 20, 2013. The training portion of the meeting consisted of a lawyer for Sands Anderson, Ms. Cosby, going through the State of Virginia's model stormwater implementation program ordinance. Ms. Cosby was involved with the development of the stormwater program at the state level and was intimately familiar with the ordinance and its development. Ms. Cosby started off by saying that a local stormwater ordinance can be added into county ordinances either as a stand alone ordinance or integrated with other ordinances such as the erosion and sediment ordinance. All of the county staff present responded, that due to the simplicity involved, a stand alone stormwater ordinance would fit their county better than an integrated ordinance in the short term. There was discussion by county staff that after the stormwater program has been in place a year or two, then integration of the Stormwater and Erosion & Sediment ordinance might be reconsidered.

Ms. Cosby then went through the ordinance section by section, explaining where some of the flexibility for local options were. Of particular note was the stormwater permit appeal process. If an applicant has been denied coverage by the local stormwater authority, then the applicant has the right to appeal. The model ordinance states that the appeal authority had to be named in the ordinance, but it did not specifically state what or who that authority was. The attorney explained that some counties have designated the Board of Zoning Appeals (BZA) as the appeal authority, while others had allocated that responsibility to the Board of Supervisors, while still others named the permit authority staff person as the appellate authority. County staff noted potential scenarios of the differing appeal authority, noting that many of the eligible entities were not very well versed in stormwater controls, environmental permitting or nutrient reduction efforts. There was discussion of whether a Wetlands Board could be the appeal authority, and the general consensus was that they could. Ms. Cosby concluded the meeting by reminding everyone of the April 1, 2013, deadline to deliver the stormwater ordinance to Department of Conservation and Recreation.

During the local coordination portion of the meeting, NNPDC staff brought up the issue of public access to state waters as the VACZM was planning a PDC Competitive Fund Grant Request for Proposals to be released in a few months that had public access projects as one of the priorities. The grant application was due in the summer, so localities needed to start working on a plan for any project that they want to undertake. In the Northern Neck, public access to water is a high priority in several of the Northern Neck counties and is stated so in at least two county comprehensive plans. There were several public access projects discussed, but no county was in a position to commit fully to a project. NNPDC staff indicated that, in the future, there might not be a PDC Competitive Grant Fund, so if there was any way possible, this year would be the year to get a project completed. While two counties had public access projects that they were considering, the timing was off on one, and the land deal had not been completed on the other. NNPDC staff then asked if there was preliminary work that could be done, such as prepare the site for development or build an access road and/or parking lot, and in both instances, this was not possible within the given time frame.

On August 14, 2013, NNPDC staff held the third Northern Neck Land Use Administrator's training/local coordination meeting began with local coordination with NNPDC staff informing local county staff of the Virginia Association of Counties (VACO) Coastal Insurance Exclusion Study. NNPDC explained that VACO, at the request of Mathews County, became aware that several insurance companies were pulling back coverage of waterfront properties. Some insurance companies would not renew insurance on waterfront properties, and others made a policy of not issuing policies on properties 1/4 mile, 1/2 mile, or even 1 mile from tidal waters. In order to better understand the problem, VACO has requested that the coastal PDC's gather county digital data suitable for use in a Geographic Information System (GIS), either E911 address points or tax maps with the real estate assessors improvement values included in the attribute table. The assessed land and building values will be used in the GIS for estimating the dollar amount of structures that potentially could become uninsurable with 1/4 and 1/2 mile from tidal waters. NNPDC staff queried all four county staff persons in attendance as to whether their county would be willing to participate in this study. NNPDC staff then reassured county staff present that if they wanted NNPDC staff to strip out the landowner name and mailing addresses from the digital tax map attribute table, then NNPDC staff could do that, leaving only the tax parcel ID, assessed improvement value, assessed land value, and total assessed value present. All four county staff replied that they would supply the needed information, provided that they got a copy of the VACO Coastal Insurance Exclusion Study report once completed. NNPDC staff agreed to monitor the study and provide the results to the counties when available.

NNPDC staff then discussed the Virginia Rural Working Waterfront Coalition Workshop and the workshop planning status. NNPDC staff related that the NNPDC is continuing its work on Working Waterfront issues and cooperating with the Virginia Coastal Zone Management Program, Virginia Sea Grant, VIMS, MPPDC, and ANNPDC in Rural Working Waterfront Coalition. The project seeks to raise awareness of the issues that face Virginia's Working Waterfront areas among the businesses that must contend with the issues. The Rural Working Waterfront Coalition partners have been planning a workshop for the Working Waterfront business owners in rural Coastal Virginia to help solicit ideas on what are the problems facing Working Waterfronts and how best to protect the heritage and benefits to the local economy that they represent. NNPDC staff announced that the Virginia Rural Working Waterfront Coalition Workshop is scheduled to be February 26, 2014 at VIMS in Gloucester Point, VA. Sea Grant, Virginia Waterman's Association, Virginia Shellfish Growers, Virginia Marine Trades Association, and other industry partners are inviting all the businesses, and as part of the cooperative effort, the PDCs are asked to invite the county land use staff and elected officials from each county to attend this workshop. NNPDC staff asked attendees to save the date, plan to attend, and to notify others in their county that may be interested in rural working waterfront issues.

NNPDC staff explained that as a part of the planning for the Rural Working Waterfront Workshop, the PDC's are requested to gather county digital zoning layers and see if working waterfront uses (seafood processing, boat building, marinas, etc.) are allowed in the zone 1) by right or 2) through special exception or 3) not at all. The NNPDC would code the zoning layers with the three classifications and forward the three category digital zoning maps to the VAZCM to consolidate into one region-wide map. The idea behind this project is to educate working waterfront businesses, so they understand that local zoning laws may have different policies relating to grandfathering of non conforming uses. Thus, if for some reason, the working

waterfront business closed for a length of time, due to storm damage; or a death of a business owner, local zoning laws may be an impediment to restarting the business. The maps would help illustrate the myriad of different zoning areas throughout Coastal Virginia and would hopefully motivate some working waterfront businesses to query their local county zoning administrator on what is allowed within the zoning ordinance on their tax parcel. Knowing what zoning limitations on a tax parcel is key to protecting a business, as well as an integral part of any expansion of the business in the future. NNPDC staff asked if the county would allow the NNPDC to map each the county zoning map to illustrate how working waterfront friendly each local zoning class is, for use in the Rural Working Waterfront Coalition workshop. Each of the four county staff agreed that the zoning information is public knowledge and that most landowners are not very knowledgeable regarding uses allowed in their lands zoning class, so this would be a good project to help educate citizens about local zoning laws.

The training portion of the August 14, 2013, Northern Neck Land Use Administrator's Meeting was instruction on GIS, Mobile GIS, and GPS mapping, given by a consultant from Timmons Group. Northern Neck county staff made inquiries on what would be the best way counties could track stormwater BMPs that will be installed once the local stormwater program is implemented, and what type of software and hardware might be needed to be purchased. NNPDC staff contacted Timmons to help explain the best, low cost options to gathering digital geographic information compatible data in the field and then efficiently transfer that data to the land use office. Timmons Group staff started out the presentation explaining their business and projects that they have worked on including stormwater analysis, stormwater treatment structure design, as well as pollutant load estimates. Timmons staff noted a mobile GIS mapping project they worked on with Prince William County to record locations of mosquitoes that quickly expanded into canker work and gypsy moths. Timmons noted while this project was not related to stormwater, the technology to capture the data was the same. Timmons staff related that 10 years ago this data would have been collected on a Trimble mapping GPS and then imported into a GIS. However, this project utilized today's smart phones, specifically iPhones and iPads. Timmons Group constructed a smart phone application that uses the phone's internal GPS to mark the location, and the data entered on site is uploaded to a GIS. NNPDC staff asked exactly how the data was transferred from the phone into a GIS layer, and Timmons staff responded that there were ESRI modules that will translate the data from the smart phone and create a shapefile for use in ArcMap 10. Timmons staff then demonstrated the app from a smart phone interface. Timmons noted that they had developed similar smart phone applications that helped track property damage in Myrtle Beach. The app allowed a geo-tagged photo to be taken, a voice memorandum could be attached as well as the x,y coordinate. Timmons staff expounded that most everyone has smart phones, and instead of purchasing expensive hardware, organizations can have employees use their own devices (smart phones) and save money. Timmons staff stated that by leveraging what people already have, costs for the program could be kept down. NNPDC staff thanked Timmons staff for the training session and the meeting was adjourned.

NNPDC staff coordinated with the Department of Conservation and Recreation for a Floodplain Ordinance Workshop for the Northern Neck Localities on the morning of September 25, 2013, that detailed the changes localities need to make once the newly revised FEMA floodplain maps are adopted by the locality. Ms. Hall from DCR presented on the changes needed, and there was considerable discussion about the difference between permanent structures, mobile homes, and recreation vehicles. Permanent structures are allowed in the floodplain while mobile homes and

recreational vehicles had restrictions on their existence in a floodplain. There was also some discussions on new components in the revised FEMA floodplain maps, specifically the LIMWA. LIMWA is a line that depicts the Limit of Moderate Wave Action and is defined as being mapped to delineate the inland extent of wave heights of 1.5 feet. Ms. Hall mentions there is no specific requirement to mention the LIMWA in your county floodplain ordinance, but that counties get Community Rating System points (reductions in flood insurance for those localities participating in the Community Rating System), if the county enacts V Zone standards to the LIMWA line. NNPDC staff queried all county staff present and learned that only one county, Richmond County, has applied for and been accepted into FEMA's Community Rating System. Ms. Hall mentioned that there may be some assistance for the counties in revising their floodplain ordinance through the William and Mary Coastal Law Clinic and to contact her for more information regarding that opportunity. The meeting concluded shortly after noon.

The afternoon of September 25, 2013, NNPDC staff held the fourth Northern Neck Land Use Administrator's training/local coordination meeting. NNPDC staff began the meeting by briefing the localities on the work done by the Virginia Rural Working Waterfront Coalition Workshop planning committee, and the challenges posed in trying to categorize zoning classes as working waterfront friendly, those that are with limitations and those that are not. NNPDC staff mentioned the workshop committee was working on a save-the-date card and pre-workshop survey for working waterfront interests to complete that would help the committee tailor the workshop agenda to either perceived or well known issues. NNPDC staff announced that the PDC would be available to assist any county with large format mapping for the revised FEMA Floodplain Ordinance process. NNPDC staff continued that if any county needed any GIS analysis, such as subsetting E911 structure address points by flood zone category, that the PDC would be glad to assist. The next item discussed were the remaining tasks needed for submittal of the draft local stormwater program implementation due December 15, 2013. Since localities have already completed the model ordinance, funding and staffing plan, the main task remaining was drafting a policy and procedures plan. County staff asked if the state had produced a model policy and procedures document. NNPDC staff responded that as far as he knew there was no such document and thought that since each county operates differently the state did not feel they could accomplish a model document that fits all county situations. NNPDC staff noted the question to follow up with DCR staff to make sure. The conversation then shifted to BMP tracking, mobile mapping and record keeping. The advantages of mobile applications were discussed, as well as the disadvantage of the dependence on an outside vendor to create and modify smart phone applications for data collection. County staff also mentioned that there are still some areas in the Northern Neck that do not receive cell phone signals, which could hamper any data collection in those areas. County staff requested information on how DCR currently records stormwater information in the field. NNPDC staff was directed to inquire on how DCR records information in the field during a stormwater inspection and to report back to the county staff.

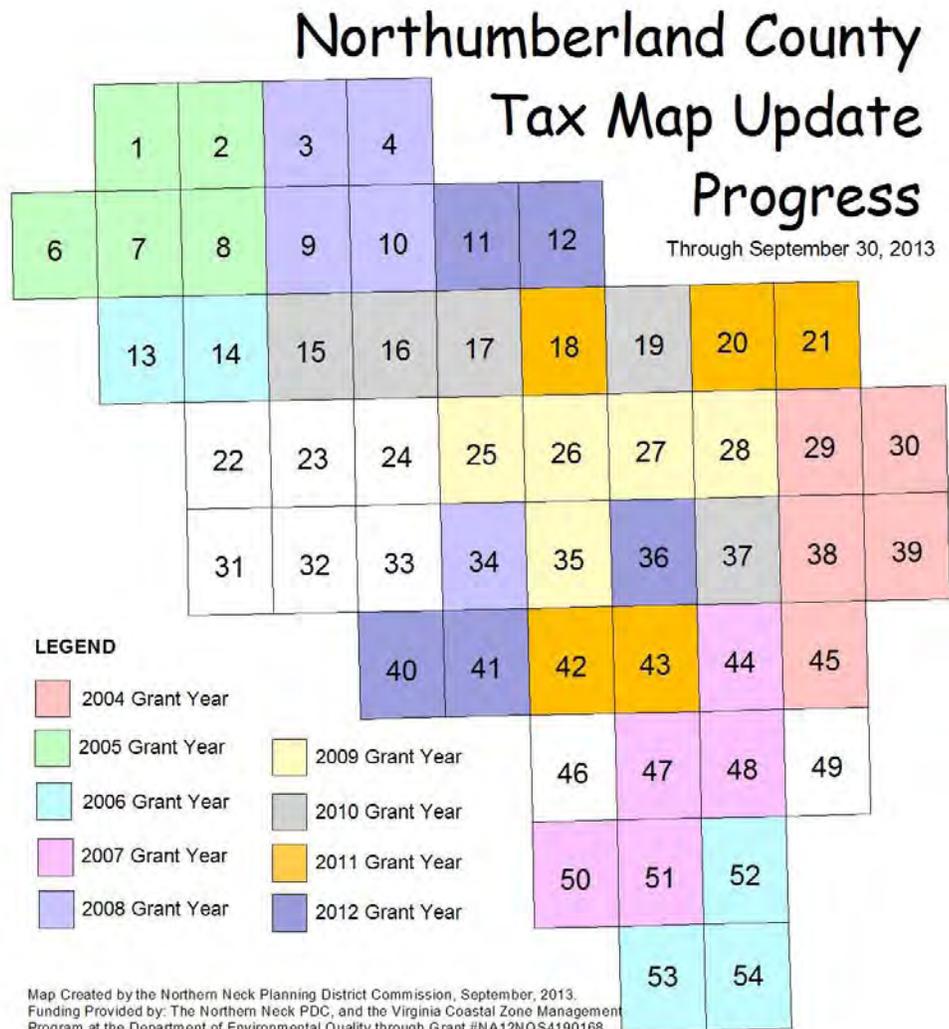
The second half of the meeting was a training session by NNPDC staff on the Virginia Natural Heritage Data Explorer (NHDE), which is run and maintained by Virginia Department of Conservation, Division of Natural Heritage (DCR-DNH) staff. The NHDE is a interactive mapping application that allows localities in Virginia to freely query natural heritage data via a map interface and request reports from DCR-DNH on threatened or endangered flora or fauna

for specific sites that are delineated by the user. Businesses are allowed to use the NHDE as well; however, there is a fee associated with non-governmental use. NNPDC staff recently received training on the NHDE and wanted to pass that knowledge on to the Northern Neck land use administrators. NNPDC staff logged into the NHDE while the computer was projected, so all present could see and walked the participants through the various functions of the site. NNPDC staff remarked that the county staff should be familiar with one component of the NHDE, which was the Virginia Conservation Needs Land Assessment (VCLNA) data, since they worked with that data in the Blue Green Infrastructure Planning project a few years back. NNPDC staff illustrated how a polygon could be drawn on the map (to represent a project where development was going to occur) and the steps to submit that area for a search for threatened and endangered plants and/or animals. NNPDC staff also remarked that the NHDE could be used as a poor man's Geographic Information System, enabling a user to make maps and print out PDF's of areas of interest. One county noted that being able to print out specific areas would be useful for county staff without GIS software as well as some of the towns in the region that cannot afford expensive mapping software packages and annual maintenance. With those comments, the meeting concluded.

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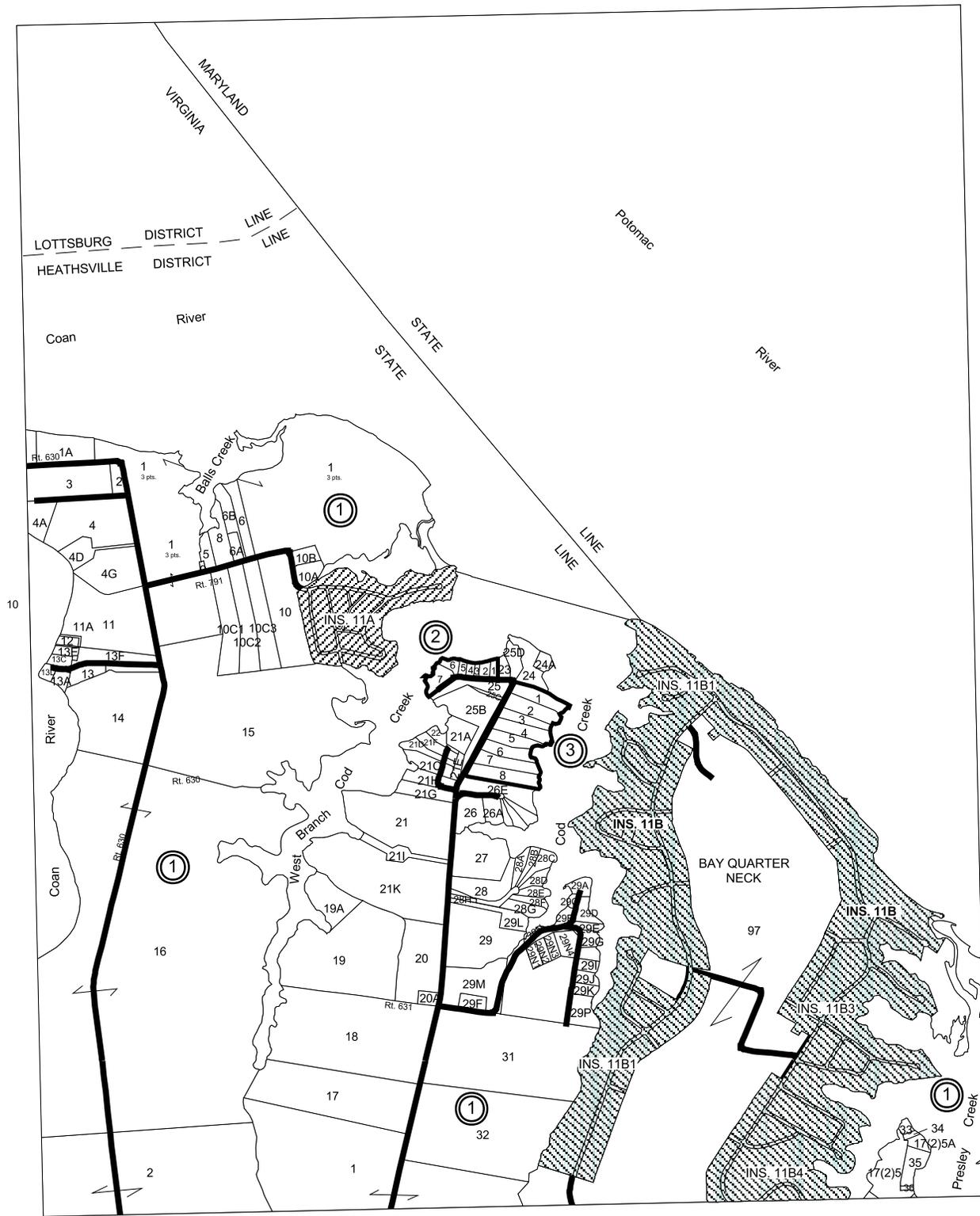
III. Northumberland County Five Revised Digital Tax Maps

NNPDC staff have been updating Northumberland Counties tax maps since 2005. The existing digital tax maps are being revised using Virginia Base Mapping Program's 2009 Aerial photography. Northumberland County has chosen this piece meal approach to update their digital tax maps to reduce the cost of having the maps revised by an outside vendor. NNPDC staff have extensive experience with digital tax maps revision and was employed by the vendor that created the first digital set of tax maps for the county. This grant year, the five tax maps that were revised were 11, 12, 36, 40 and 41. *(Due to file size limitations, only two of the five revised digital tax maps are included, with one example map of revisions made to tax map 36).*



NORTHUMBERLAND COUNTY

5



12



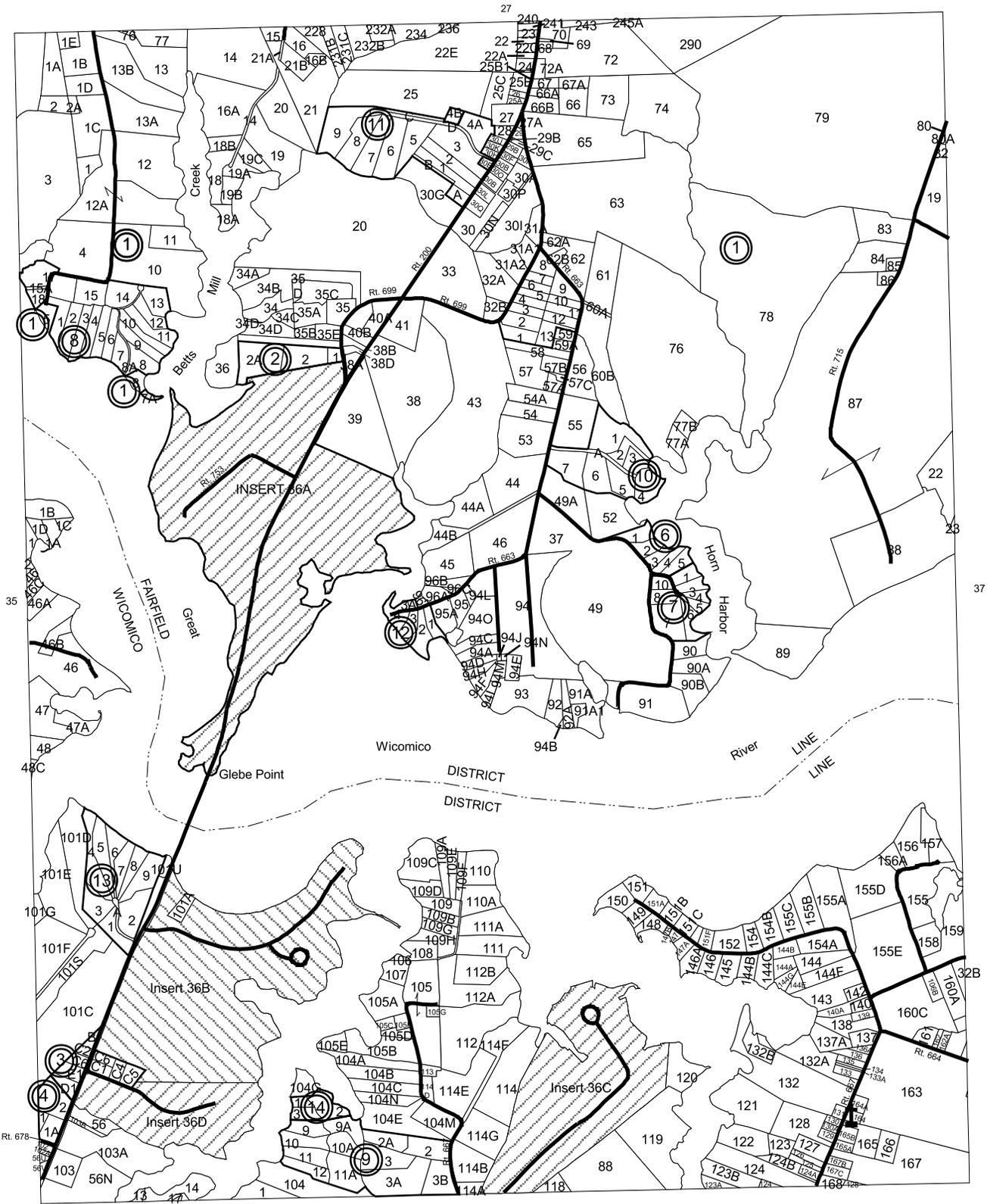
17
LOTTSBURG DISTRICT
HEATHSVILLE

SECTION 11
INSERT
SEPTEMBER 2013

Funding Provided by: The Northern Neck PDC, and the Virginia Coastal Zone Management Program at the Department of Environmental Quality through Grant #NA12NOS4190168 of the U.S. Department of Commerce, National Oceanic and Atmospheric Administration, under the Coastal Zone Management Act of 1972, as amended.



NORTHUMBERLAND COUNTY



FAIRFIELD DISTRICT
WICOMICO DISTRICT

SECTION 36
INSERT

SEPTEMBER 2013

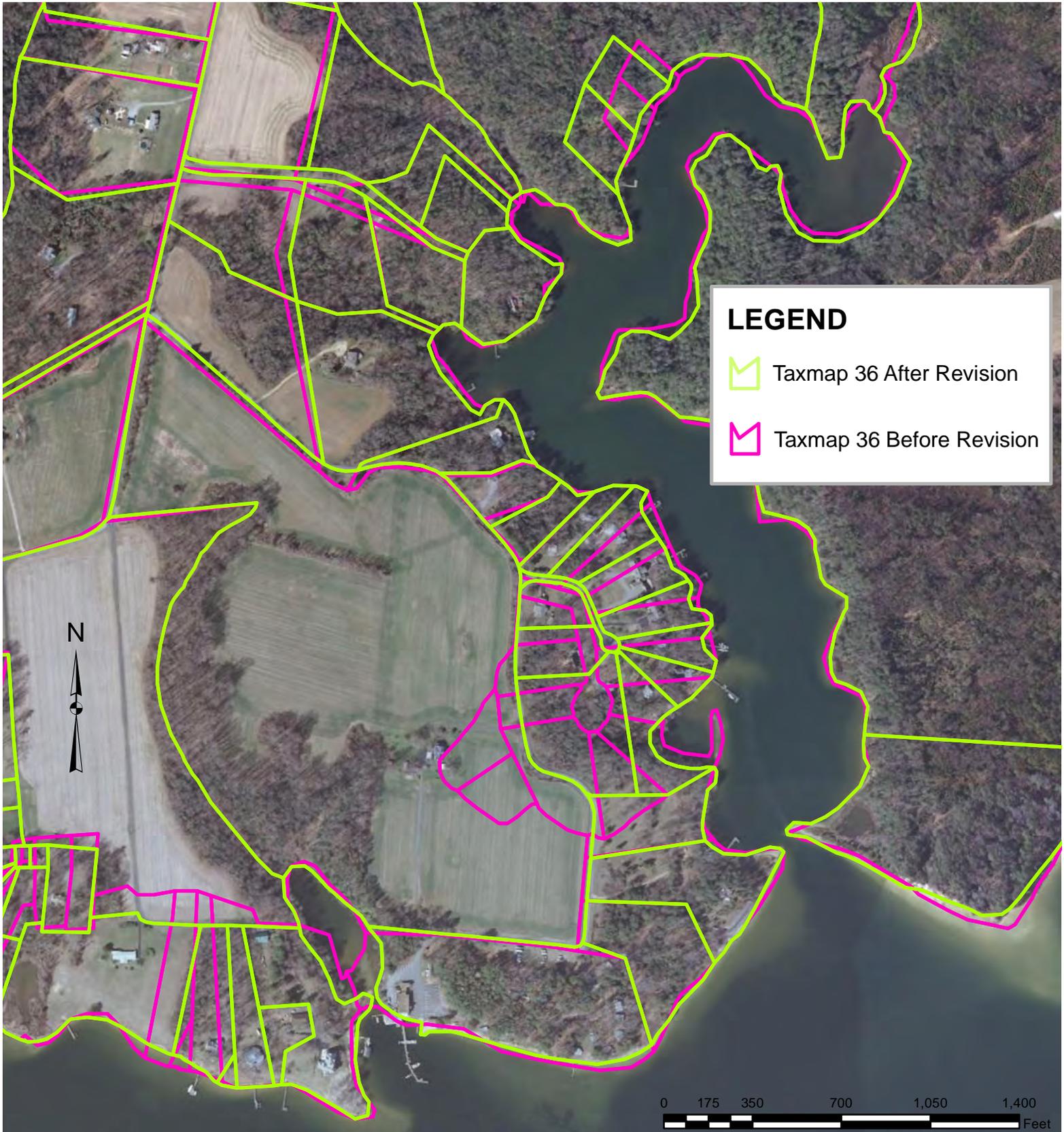
Funding Provided by: The Northern Neck PDC, and the Virginia Coastal Zone Management Program at the Department of Environmental Quality through Grant #NA12NOS4190168 of the U.S. Department of Commerce, National Oceanic and Atmospheric Administration, under the Coastal Zone Management Act of 1972, as amended.



Virginia Coastal Zone
MANAGEMENT PROGRAM



Northumberland Tax Map 36 Revision Example



This project was funded by the Northern Neck Planning District Commission and the Virginia Coastal Zone Management Program at the Department of Environmental Quality through Grant #NA12NOS4190168 of the U.S. Department of Commerce, National Oceanic and Atmospheric Administration, under the Coastal Zone Management Act of 1972, as amended.



VI. Lancaster County Water Trail Plan

Human powered paddling sports are on the increase around the Northern Neck region as citizens realize the low cost and spectacular vistas one can witness on the waters of the Northern Neck. Whether it is a resident in a rowboat getting an upper body workout in March, a tourist in the summer on a stand up paddleboard in a creek off of a state park in July, or a die-hard kayak fisherman jigging for monster rockfish in December, there is a rise in the use of human powered watercraft in our region.

NNPDC staff are building on previous the previous year's VACZM PDC Technical Assistance grant work with the addition of two water trails to the existing network of water trails, making a four loop water trail network for Lancaster County. This year, NNPDC staff decided to create two maps of each water trail, one based on the USGS 1:24,000 Topographic Maps and the other with the 2009 Virginia Base Mapping Program's Color Aerial Photography. NNPDC staff reasoned that some users may prefer the aerial photograph water trail, as they oftentimes show structures on shore as well as in the water that can be used to help navigate a course while on the water.

This grant year, NNPDC staff created the Greenvale Creek Water Trail and the Corrotoman River Water Trail. The Greenvale Creek Water Trail is located on Greenvale Creek, almost equidistant from Belle Isle State Park to the north (up the Rappahannock River) and the mouth of the Corrotoman River to the south (downstream from Greenvale Creek). The Greenvale Creek Water Trail is based on the Virginia Department of Game and Inland Fisheries public boat ramp located approximately 3/4 of the way up the length of the creek. The Greenvale Creek Water Trail is well suited for beginner paddlers as the creek is very sheltered and has a narrow mouth. For the more adventurous and experienced paddlers, paddling to the mouth of the creek and out into the main stem of the Rappahannock River is always an option. The approximate length of the Greenvale Creek Water Trail is 3.4 miles, which includes a short excursion out into the Rappahannock River. There is a marina located on the creek, the Greenvale Creek Marina, that mainly caters to power boaters. At the mouth of the creek, there used to be a seafood restaurant, but unfortunately the owner retired and the business closed.

NNPDC staff already used all of the public boat launch sites in Lancaster County in the creation of the previous three water trail maps (two in FY11 and the one above in FY12). NNPDC staff hoped to create a water trail on some section of the Corrotoman River as it is the largest river in the county (excluding the Rappahannock River, of course) and it neatly bisects the county. Since no public boat launch sites were available, NNPDC staff contacted a local marina, Yankee Point Marina, to inquire as to whether their business would be amenable to hosting a water trail emanating from their facility. The owner of Yankee Point Marina was excited about having a water trail based from his marina and noted that they normally do not charge a fee to people that launch canoes or kayaks at their boat ramp. One of the reasons Yankee Point Marina was contacted was that it was the closest marina to one of the more interesting tourist attractions in the Northern Neck: the Merry Point Ferry. The Merry Point Ferry is one of two free cable ferries that are operated by the Virginia Department of Transportation (the other one, Sunnybank Ferry, is also located in the Northern Neck, in Northumberland County). The Merry Point Ferry is the highlight of the Corrotoman River Water Trail, and has been in operation since 1847. The ferry

can carry up to four cars with the newer ferry, built in 2010. Previously, it was a two car ferry. Due to the large size of the Corrotoman River and the wide expanse of open water from the mouth of the river to the divergence of the Western and Eastern branches of the Corrotoman River, the Corrotoman Water Trail is recommended for advanced to expert paddlers; however, on calm (no wind) days, the trail is suitable for intermediate paddlers. The Corrotoman River Water Trail is rather long at 6.3 miles (if you transit the entire route); however, paddlers can adjust the length of their trip to shorten it as needed.

In addition to the loop trails, NNPDC staff created a long distance through water trail down the main stem of the Rappahannock River with logistical information to assist paddlers in planning a paddle trip. As with the previous water trail creation in the previous grant year, NNPDC staff is collaborating with staff from both the Northern Neck Chesapeake Bay Public Access Authority as well as from the Northern Neck Tourism Council (NNTC). Following the tradition of the earlier maps, these maps will be hosted on the Northern Neck Tourism Council (NNTC) website. Instead of the earlier text introduction to the water trails, the website now has a graphic user interface, which is based on the countywide water trail map. The map shows all of Lancaster County, the major and minor roads, and the county seat. In addition, the smaller four loop water trails are shown on the map and are accessible by clicking on the water trail label. In addition to the shorter length day paddling trails, NNPDC staff included points of interest on the countywide water trail maps for logistical trip support. These points of interest on the map are either prominent navigational features (such as Mosquito Point), places for activities (such as Belle Isle State Park), or places to load and unload your canoe (such as the Little Oyster Creek Canoe/Kayak Launch). The logistical planning points of interest are clickable, and when clicked on, the user is directed to a spreadsheet that has all of the point of interests for the county with *eat, sleep, do, and more info* columns. Each point of interest is numbered, and the user will need to note that number so that the corresponding entry can be located on the spreadsheet page. Not all points of interest have entries in all categories, but all have at least one entry. The *more info* column has web site addresses so the user can research to learn more about a particular site. Of course, there is additional logistical/trip planning information on the main Northern Neck Tourism website, as well as through the various businesses associated with the Northern Neck Tourism Commission.

NNPDC and NNTC staff plan on promoting the water trails this spring, hoping to entice tourists and residents alike to explore the waterways of the Northern Neck and gain a greater appreciation for the waters that surround our peninsula.

The web address for the Northern Neck Tourism Commission website for Water Trails is:

<http://www.northernneck.org/NNTC-PAGES/recreation.htm#watertrails>

The web address for the Lancaster County Water Trail(s) is:

<http://www.northernneck.org/NNTC-PAGES/Lancaster-Water-Trails.htm>

(click on the labels of features in the map to access the water trails, and logistics page)

The following pages show the content of the Lancaster Water Trail Plan posted on the NNTC website: the Greenvale Creek Water Trail, the Corrotoman River Water Trail, and the Lancaster County Potomac River Water Trail produced by NNPDC staff for the FY12 VACZM Task 45 Grant.

Greenvale Creek Water Trail

Thomas Landing Road
662



Legend

Greenvale Creek Water Trail

EXPERIENCE LEVEL

- Beginner to Intermediate
- Advanced to Expert

Points of Interest

- Greenvale Creek Public Boat Ramp
- Navigation Marker: Red
- Navigation Marker: White
- Part of Island Eroded
- Possible Fish Location
- Possible Wading Bird Location
- Possible Waterfowl Location

Approximate Length of Water Trail : 3.4 miles



Rappahannock River

This project was funded by the Northern Neck Planning District Commission and the Virginia Coastal Zone Management Program at the Department of Environmental Quality through Grant #NA12NOS4190168 of the U.S. Department of Commerce, National Oceanic and Atmospheric Administration, under the Coastal Zone Management Act of 1972, as amended.

Greenvale Creek Water Trail

Thomas Landing Road
662



Legend

Greenvale Creek Water Trail

EXPERIENCE LEVEL

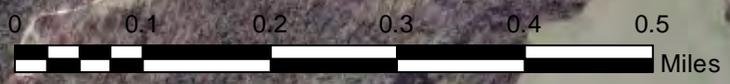
Beginner to Intermediate

Advanced to Expert

Points of Interest

- Greenvale Creek Public Boat Ramp
- Navigation Marker: Red
- Navigation Marker: White
- Part of Island Eroded
- Possible Fish Location
- Possible Wading Bird Location
- Possible Waterfowl Location

Approximate Length of Water Trail : 3.4 miles



Rappahannock River



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The majority of the Greenvale Creek Water Trail is intended for beginner to intermediate paddlers due to the sheltered nature of Greenvale Creek.

Greenvale Creek is a small creek off the Rappahannock River downstream of Belle Isle State Park and upstream from the Corrotoman River in Lancaster County. Greenvale Creek Boat Ramp is the only public water access point in the county, save for the boat ramp at Belle Isle State Park. Greenvale Creek has had problems with shoaling near the mouth of the creek, limiting access to power boats to the boat ramp. Greenvale Creek was dredged in 2010, but the channel has already begun to fill in. The depth at the mouth of the creek is more than adequate for human powered craft such as canoes, kayaks or paddleboards.

Greenvale Creek boat ramp is at the end of Rt. 662, Thomas Landing Road. There is a turnaround at the bottom of the hill, but no parking is allowed next to the boat ramp. The parking area for the Greenvale Creek boat ramp is in the grass field on the hill above the boat ramp.

During the summer, boaters can catch spot, and croaker in Greenvale Creek, well as puppy drum and perch if they are patient. Standard bottom rigs with bait (bloodworms or squid) work well, but a small jig with a soft curly tail grub is also effective when cast to structure such as boat docks and downed trees.



Greenvale Creek Boat Ramp
Note Parking Area - Grass Field



Historic Greenvale Manor overlooks
Greenvale Creek

Greenvale Manor, a historic plantation house situated on the left bank near the mouth of the creek, was built around 1840. The structure is an altered Greek Revival frame house with matching wings added to each end of the house at a later date (see photo on the left). The house is currently on the market (fall of 2013) and was used by the previous owners as a bed and breakfast. There are not many historic wood frame houses left in the Northern Neck as they were more vulnerable to fires than their brick counterparts. The house is currently privately owned and not open to the public. The house can be seen from Greenvale Road but not from Greenvale Creek.

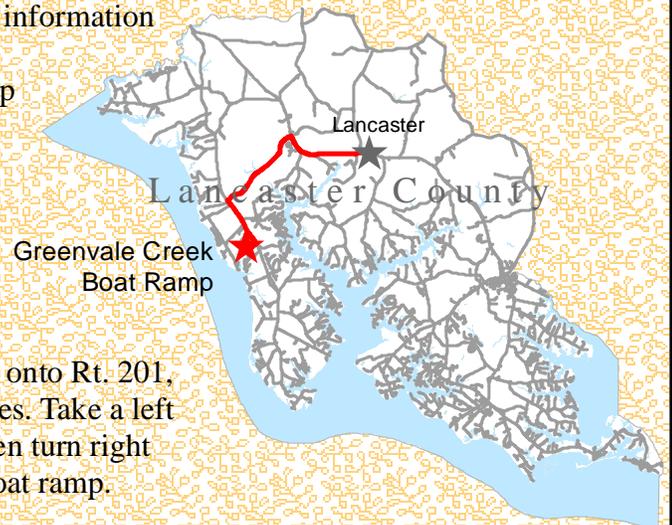
Be sure to check the marine forecast from the National Weather Service for the Rappahannock River from Urbanna to Windmill Point area by clicking on the Rappahannock River polygon on the map at: <http://www.erh.noaa.gov/er/akq>

Boaters also need to be in compliance with Virginia boating equipment regulations regarding personal flotation devices, sound producing devices, and visual distress signals. More information can be found here:

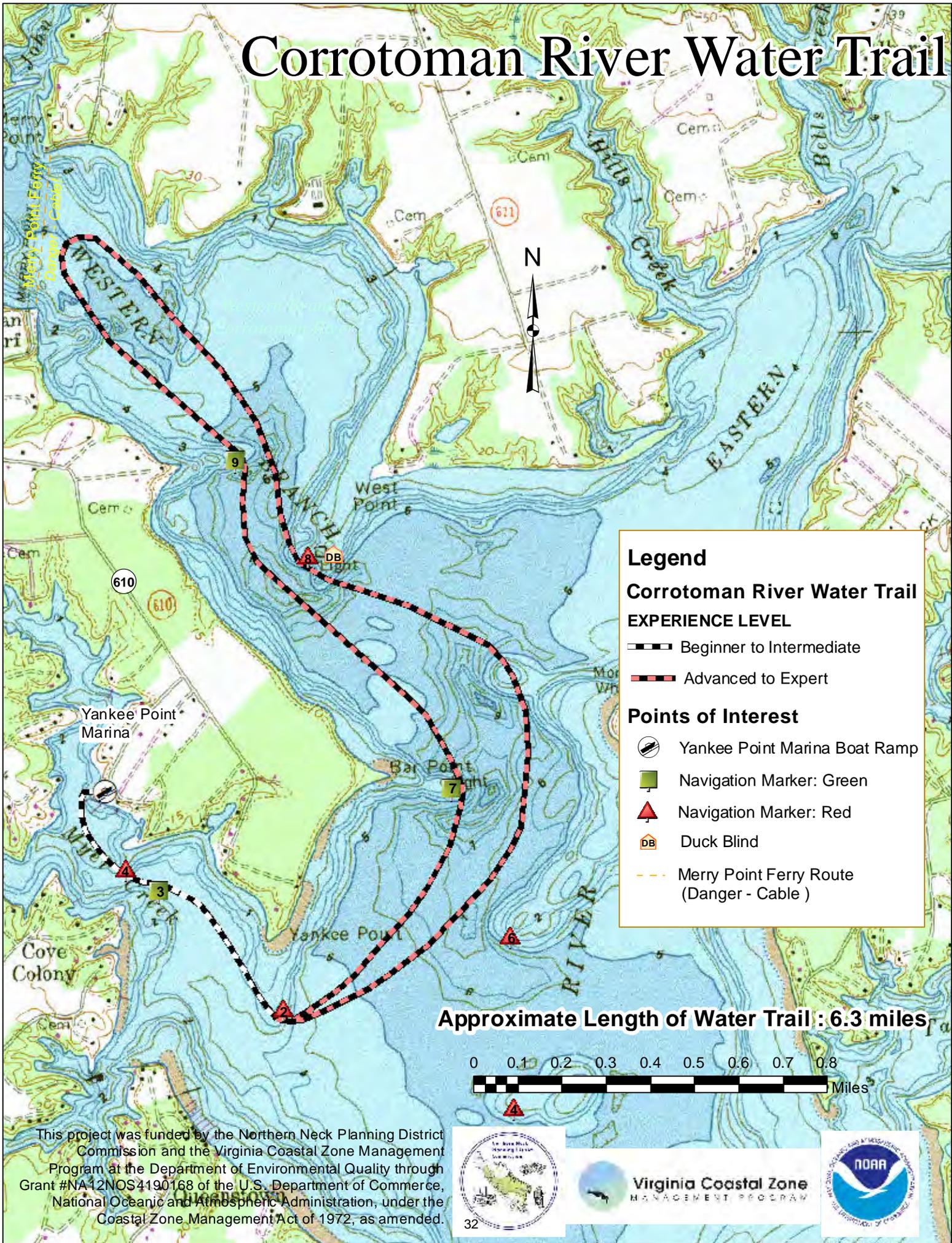
<http://www.dgif.virginia.gov/boating/wog/equipment-regulations.asp>

Directions to Greenvale Creek Public Boat Ramp follow.

From the village of Lancaster in Lancaster County. Follow Rt. 3 westbound approximately 3 miles to the village of Lively. Turn left onto Rt. 201, White Chapel Road and continue to the end, approximately 3.2 miles. Take a left onto Rt. 354, River Road and continue approximately 1.5 miles, then turn right onto Rt. 662, Thomas Landing Road and follow to the end to the boat ramp.



Corrotoman River Water Trail



Legend

Corrotoman River Water Trail

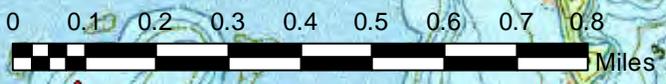
EXPERIENCE LEVEL

- Beginner to Intermediate
- Advanced to Expert

Points of Interest

- Yankee Point Marina Boat Ramp
- Navigation Marker: Green
- Navigation Marker: Red
- Duck Blind
- Merry Point Ferry Route (Danger - Cable)

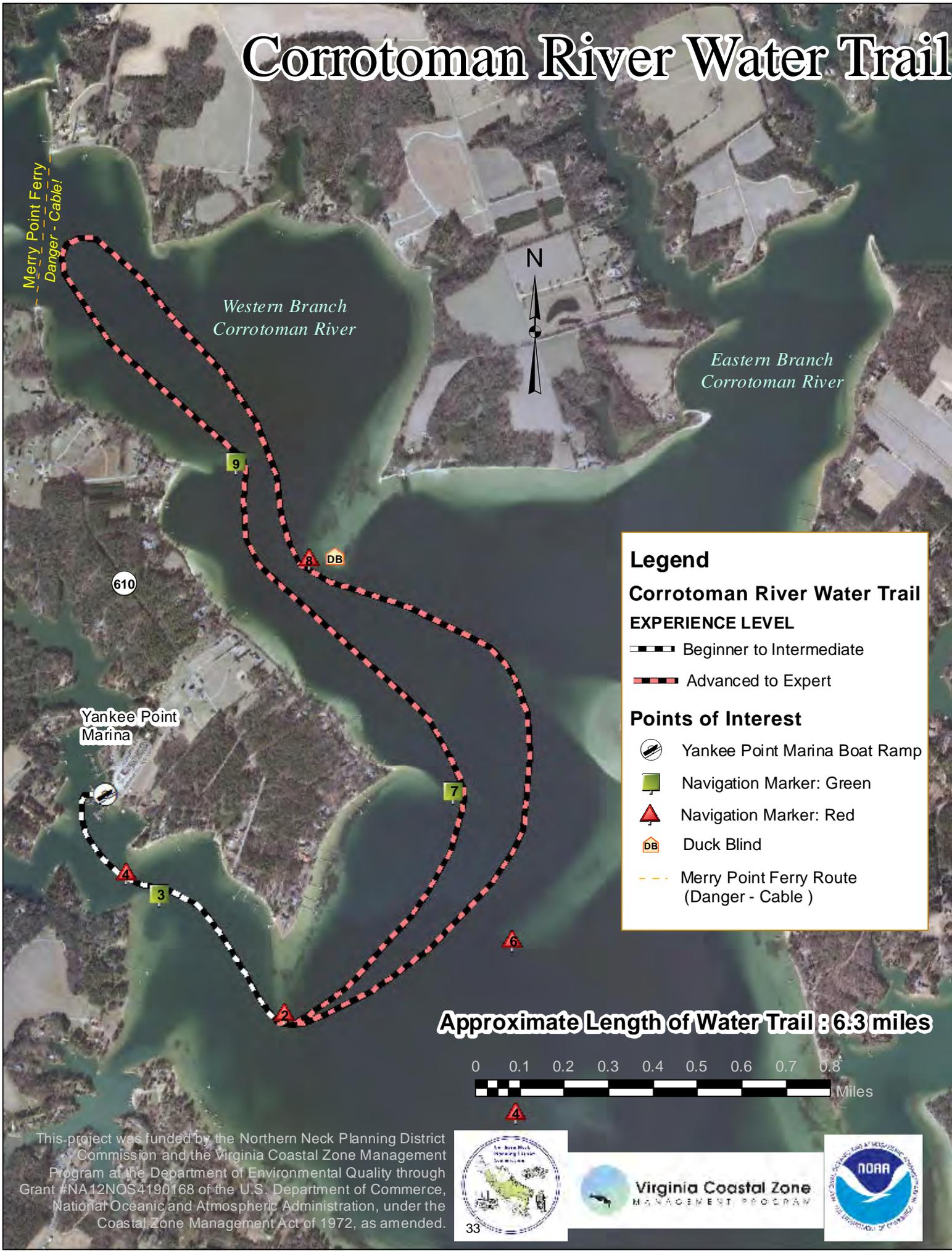
Approximate Length of Water Trail : 6.3 miles



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Corrotoman River Water Trail



Merry Point Ferry
Danger - Cable!

Western Branch
Corrotoman River

Eastern Branch
Corrotoman River



610

Yankee Point
Marina

Legend

Corrotoman River Water Trail

EXPERIENCE LEVEL

- Beginner to Intermediate
- Advanced to Expert

Points of Interest

- Yankee Point Marina Boat Ramp
- Navigation Marker: Green
- Navigation Marker: Red
- Duck Blind
- Merry Point Ferry Route (Danger - Cable)

Approximate Length of Water Trail : 6.3 miles



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The majority of the Corrotoman River Water Trail is intended for intermediate to advanced paddlers due to the large open water of the Corrotoman River.

The Corrotoman River meets the Rappahannock River upstream from the State Rt. 3 Robert E. Norris Bridge. The Corrotoman River splits in two prongs approximately 3.5 miles from the mouth of the river, with the Eastern Branch headwaters being near the village of Lively and the Western Branch headwaters being near the Town of Kilmarnock.



If you paddle the Corrotoman River in November, it is likely you will see a boat like the one on the left, a Chesapeake dead rise wooden work boat outfitted to pull an oyster dredge. Oysters were most valuable fishery in the Chesapeake Bay until the 1980s. Two oyster diseases, MSX and Dermo, killed most of the Bay oysters in the 1980s. Today, through oyster restoration efforts and a rotational harvest system on the Lower Rappahannock, oysters are making a comeback. The most recent Virginia oyster harvest numbers for the October 2012 to March 2013 season surpassed 405,000 bushels. It was the third straight increase, almost double the 2011-12 harvest, and the highest total in a quarter-century.

On the Eastern Branch of the Corrotoman River, the Merry Point Ferry crosses the river connecting Merry Point Road with Ottoman Ferry Road. When operating, the ferry saves approximately one-half hour of commuting time for residents of the peninsula. The Merry Point Ferry in Lancaster County is one of the last two remaining Virginia Department of Transportation (VDOT) operated free cable ferries in the state (the other one is located on the Little Wicomico River in Northumberland County and called Sunnybank Ferry. The Merry Point Ferry began operation in 1847 and was operated privately until 1930 when VDOT took over its operation.



Merry Point Ferry (approx. 1950s)
Note deadrise boat attached to the ferry for propulsion

Merry Point and Sunnybank ferries were powered by deadrise workboats tied to each ferry until 1985 when two replacement steel-hulled two-car ferries were built in a Deltaville boatyard for a little under \$300,000. Those ferries were powered by an onboard engine that pulled the ferry along steel cables that stretched between the shore. When the ferry boat is in operation, the steel cable is pulled up off the bottom, run through rollers powered by the engine, and then the cable drops back to the bottom of the river behind the ferry boat. In 2010, VDOT replaced both two-car ferries with four-car ferries at a cost of \$500,000, which is considerably less than the millions of dollars required to build a bridge at the two ferry locations.



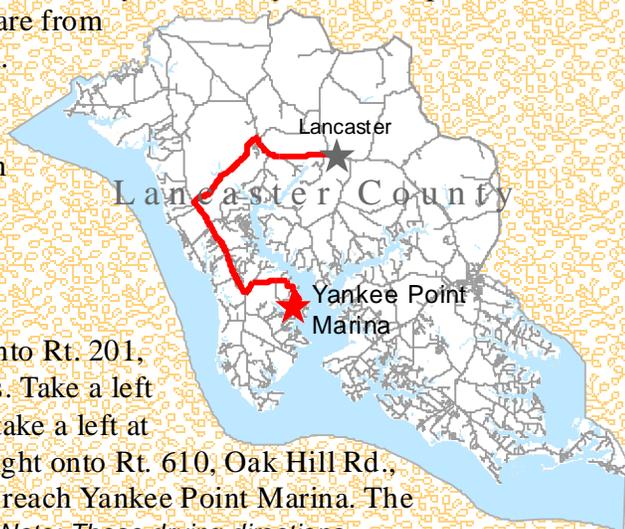
Merry Point Ferry in 2000.

Care must be exercised when operating a watercraft near the Merry Point Ferry when it is in operation. The steel cable rises and falls when the ferry crosses the river, so a vessel operator needs to be either a few hundred yards upstream or downstream from the ferry crossing to be sure to be clear of the transit cable to allow safe operation of the ferry. The Merry Point Ferry hours of operation are listed on the VDOT website and are from 7 am to 5:30 pm Tue. through Fri. and 9 am to 5:30 pm on Sat. The ferry does not operate on Sunday or Monday. For more information go to http://www.virginiadot.org/travel/merry_point_ferry.asp

Directions to Yankee Point Marina:

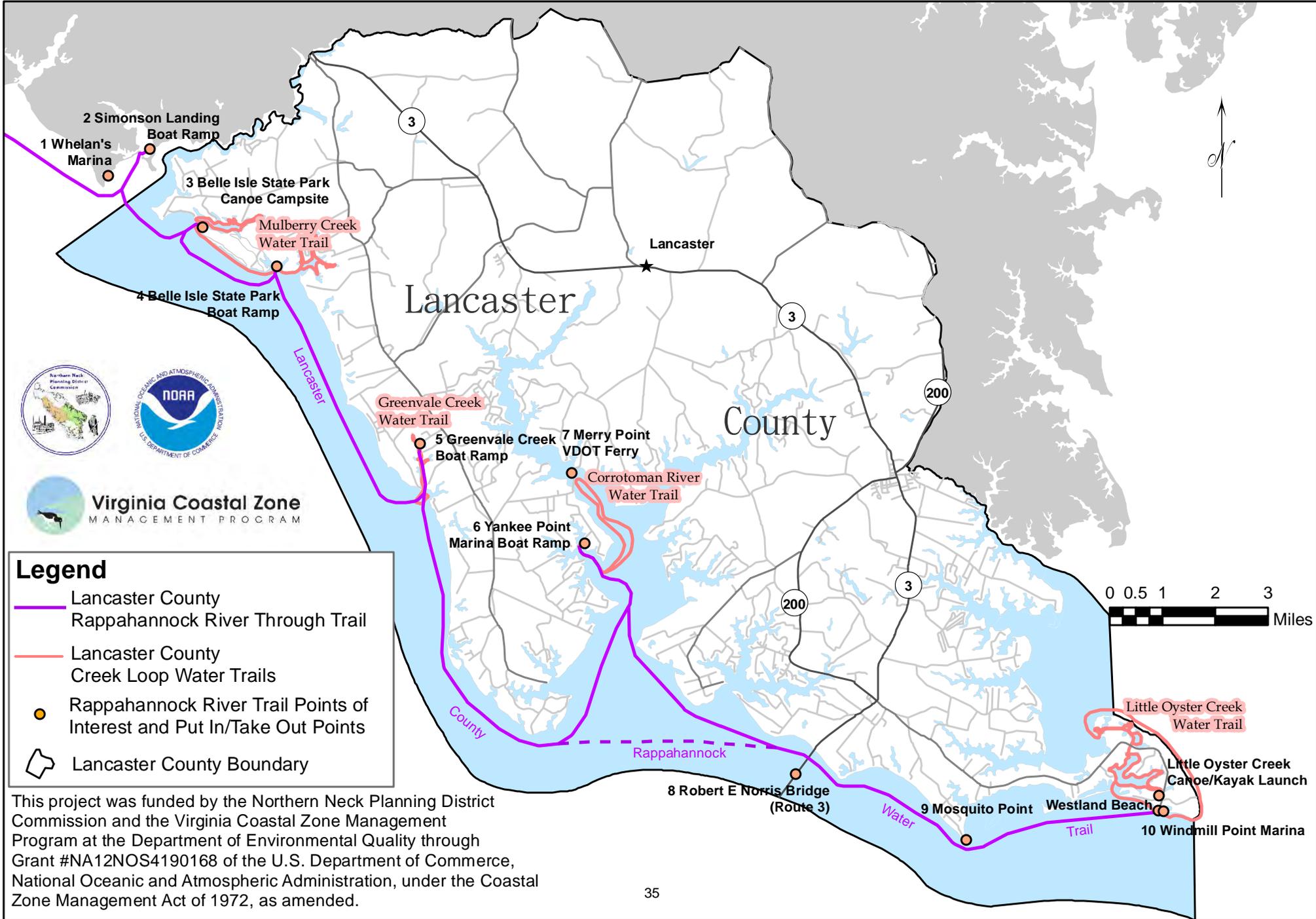
From the village of Lancaster in Lancaster County, follow Rt. 3 westbound approximately 3 miles to the village of Lively. Turn left onto Rt. 201, White Chapel Road, and continue to the end, approximately 3.2 miles. Take a left onto Rt. 354, River Road, and continue approximately 3.6 miles and take a left at Rt. 604, Ottoman Ferry Road. Travel 1.6 miles on Rt. 604 then turn right onto Rt. 610, Oak Hill Rd., and follow it 0.9 miles, bear right to stay on Rt. 610, Oak Hill Rd., to reach Yankee Point Marina. The website for Yankee Point Marina is: www.yankeepointmarina.com

Note: These driving directions are for when the ferry is NOT in operation.



Please Click on the Text Labels on the Map to Learn More

Lancaster County Water Trails



Legend

- Lancaster County Rappahannock River Through Trail
- Lancaster County Creek Loop Water Trails
- Rappahannock River Trail Points of Interest and Put In/Take Out Points
- Lancaster County Boundary

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Lancaster County Rappahannock River Water Trail Logistics

Points	Where	Eat	Sleep	Do	More info
1	Whelan's Marina		Whelan's Marina & Campground 3993 Hales Point Rd, Farnham 804.394.9500	Launch or Land a kayak	http://www.whelansmarina.com/
2	Simonson Landing Boat Ramp			Launch or Land a kayak	http://www.dgif.virginia.gov/boating/access/?filtertype=fips&fips=159
3, 4	Belle Isle State Park		Belle Isle State Park - Camping, Guest House 1632 Belle Isle Rd, Lancaster (804) 462-5030	Hiking Trails, Programs Rental boats Launch or Land a kayak	http://www.dcr.virginia.gov/state_parks/bel.shtml
5	Greenvale Creek Boat Ramp			Launch or Land a kayak	http://www.dgif.virginia.gov/boating/access/?filtertype=fips&fips=103
6	Yankee Point Marina Boat Ramp	Windows on the Water 804.462.7635	Poolside Cottage 804.462.7635	Launch or Land a kayak	http://www.yankeepointmarina.com
7	Merry Point VDOT Ferry			View from a distance	http://www.virginiadot.org/travel/merry_point_ferry.asp
8	Robert O. Norris Bridge	Willaby's 327 Old Ferry Rd, White Stone 804.435.0000	Flowering Fields Bed & Breakfast 804.435.6238	View Fish from a vessel	http://www.panoramio.com/photo/95848018 http://tlcva.com
9	Mosquito Point	Bentley's Grille 804-435-2000		Fish from a vessel	http://www.panoramio.com/photo/30250417
10	Westland Beach/Windmill Point/Little Oyster Creek	Pelican's at the Point (804) 435-8915		Swim, explore Launch or Land a kayak	http://www.pelicansatthepoint.com/ http://tlcva.com River Ride on the last Saturday of September annually!

V. Richmond County Agricultural Data Revision Database

The Virginia Chesapeake Bay Preservation Act requires landowners that participate in agricultural operations with the Chesapeake Bay Resource Management Area or the Chesapeake Bay Resource Protection Area to have current nutrient management plans. The Chesapeake Bay Protection Area (RPA or 100 foot RPA buffer) is defined as the lands that are 100 feet or less from tidal water or wetlands connected to tidal flow year round. Chesapeake Bay Resource Management Area (RMAs) are defined as areas inland from the RPA and contiguous that have a potential for degrading water quality or diminishing the functional value of the RPA if not properly managed. When incorporating the Virginia Chesapeake Bay Preservation Act into their ordinances, Richmond County chose, as did all the other Northern Neck counties, to designate all land that is not in the 100 foot Resource Protection Areas as the Chesapeake Bay Resource Management Area. This means that the entire land area of Richmond County is a Chesapeake Bay Resource Management Area, and as such, requires agricultural landowners to have current nutrient management plans.

Nutrient management plans are based on soil tests of the farm field and tailor nitrogen and phosphorous fertilizer application rates to complement the soil chemistry in the farm field. Nutrient management plans are a Best Management Practice (BMP) that aim to reduce pollution that results from agricultural fertilizer overapplication. Nutrient management planning is also in the best interest of the farmer, as fertilizer is costly and the farmer only wants to spend enough money on fertilizer to guarantee harvest yields, any more and the farmer is wasting money (and adding excess nitrogen to the groundwater as the crop can only uptake so many nutrients). This is the main concept behind nutrient management planning: what is the minimum level of nutrients needed to supplement a particular crop needs in the context of the existing soil chemistry in the specific farm field in which it is grown.

In order to comply with the Virginia Chesapeake Preservation Act, Richmond County needs to notify agricultural landowners of the requirement of nutrient management planning on agricultural lands in the county. NNPDC staff suggested using GIS to create a mailing list of agricultural landowners based on recent aerial photography. Richmond County staff also discussed creating a notification list by taking all landowners that participate in the land use valuation assessment real estate tax reduction program offered by the county, since a requirement of the program is that lands are in agricultural production. Richmond County staff indicated that they would like the NNPDC to conduct the analysis and compare the results to the land use valuation assessment to see which method might be most appropriate to notify Richmond County agricultural land owners of the nutrient management plan requirement.

1. Methodology

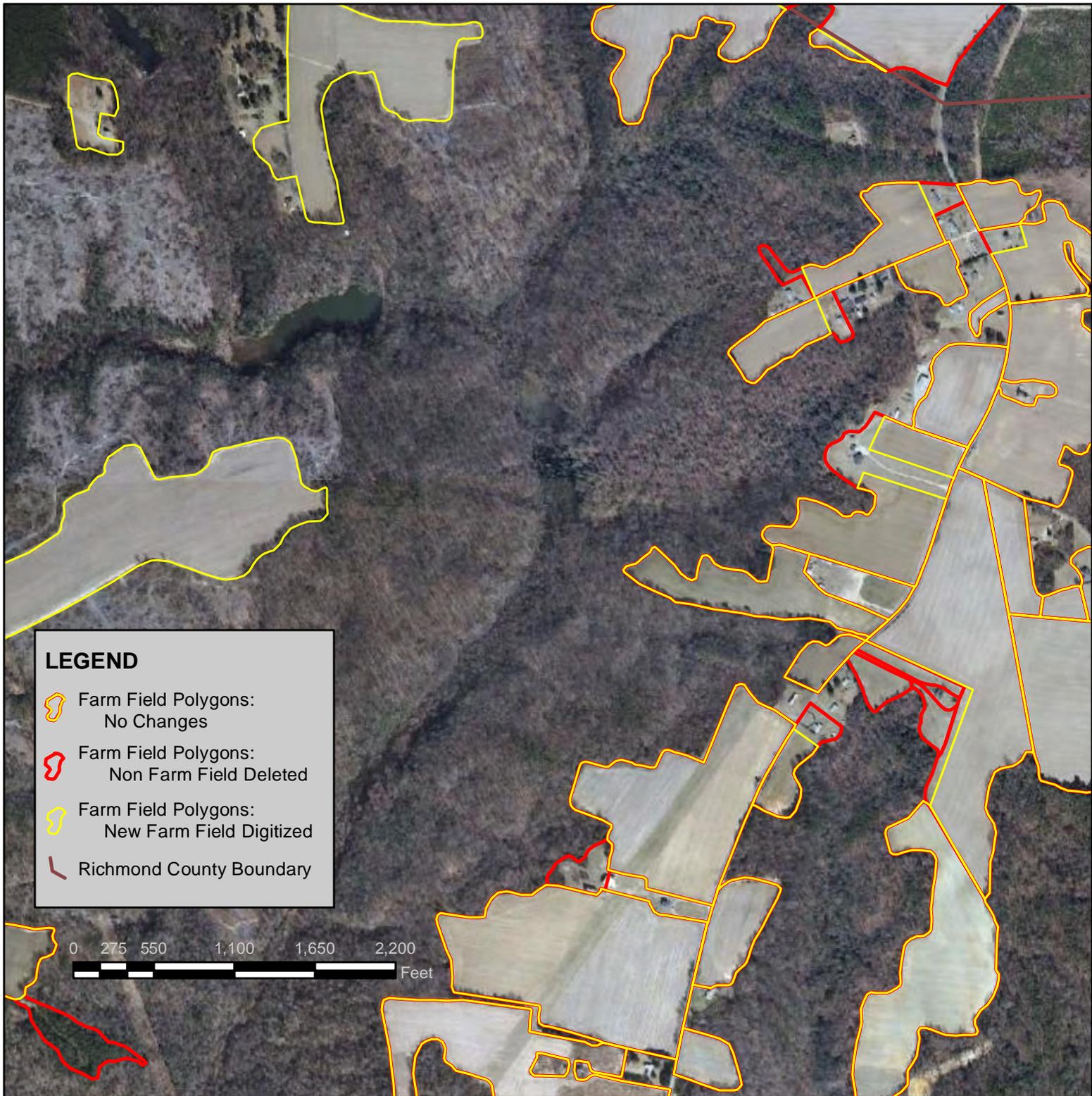
NNPDC staff, through previous VACZM Technical Assistance Grants, created a Northern Neck Farm Inventory as well as a digital land use layer for several watersheds in Richmond County. NNPDC staff examined the digital watershed land use layers for Richmond County in the NNPDC GIS since they were the most recent dataset. NNPDC staff noted that the agricultural land use category contained more than actively farm fields, such as storage areas for agricultural equipment, hay storage, farm buildings, and areas around agricultural fields that are not in crop

production. NNPDC staff decided that the land use GIS layer would take a lot more editing to pare down the polygons to only those areas that are actively cultivated. Therefore, NNPDC staff used the old Richmond County Farm Field Inventory since it contained only farm field polygons that are cultivated. NNPDC staff divided the county into six sections and examined all of the farm field polygons in each section, assessing if the farm field had changed shape, whether it had been converted to other uses such as forestry or residences (which were the two most common), and looked for actively farmed fields that were not in the original inventory.

NNPDC staff revised the farm field inventory by splitting farm field polygons where needed, adjusting boundaries where fields had been expanded (or contracted) and digitizing new farm field polygons where present. After the revisions to the Richmond County Farm Field Inventory had been completed, NNPDC staff obtained the most recent digital tax maps from Richmond County staff. NNPDC staff, using GIS, intersected the revised Richmond County Farm Field Inventory layer with the Richmond County tax parcels, which resulted in a layer of farm fields that had landowner parcels embedded within them. NNPDC staff examined the layer and noticed that along the edges of the farm field polygon, there were many small slivers of tax parcels that barely intersected the farm fields. NNPDC staff determined that these small slivers were likely due to the original drawing of the farm field outlines a little bigger than reality as the original farm fields were outlined with a thick black magic marker. Another source of these small sliver polygons could be positional accuracy problems of the Richmond County digital tax maps. NNPDC staff noted that most of the sliver polygons were very small, less than one tenth of an acre. In order to eliminate these sliver parcels, NNPDC consulted the Northern Neck Soil and Water Conservation District for their help. NNSWCD staff noted that very small farm fields do not exist as farmers need a large enough area of a farm field to be able to maneuver a tractor (or a combine), so most farm fields in this area are an acre or more. Therefore, NNPDC staff decided that by setting a cutoff value of one quarter of an acre that a majority of the sliver polygons would be eliminated. By eliminating those sliver polygons, NNPDC staff felt that this was a good compromise approach that would seek to avoid contacting those landowners in Richmond County that are not involved in agriculture. NNPDC staff then proceeded to calculate the area of all farm fields polygons after intersection with the tax maps; then selected all farm field polygons that were 0.25 acres in size or less and deleted those polygons. NNPDC staff then took the attribute table of the intersected farm fields and made a copy to modify for the Richmond County agricultural landowner mailing database. Since in many cases landowners owned several tax parcels, that all had agricultural operations, there were many cases of multiple records for the same landowner. NNPDC staff went through the entire database and deleted duplicate landowner name and address records, leaving only single record for each landowner and address. NNPDC staff then took the resulting modified agricultural landowner mailing database attribute table and converted to a Microsoft Excel format, so it would be compatible for use by Richmond County staff in a mail merge operation using Microsoft Word. Richmond County staff would be able to use the agricultural landowner database to send notice to agricultural landowners of the requirement for nutrient management planning under the Chesapeake Bay Preservation Act.

NNPDC staff created an example map of the Richmond County farm field inventory map revision process which shows an area of Richmond County where farm fields were deleted due to a change from agriculture, as well as farm fields that were added to the inventory. The Richmond County Farm Field Inventory Revision Example Map follows on the next page.

Richmond County Farm Field Inventory Revision Example



This project was funded by the Northern Neck Planning District Commission and the Virginia Coastal Zone Management Program at the Department of Environmental Quality through Grant #NA12NOS4190168 of the U.S. Department of Commerce, National Oceanic and Atmospheric Administration, under the Coastal Zone Management Act of 1972, as amended.

VI. Westmoreland County Water Trail Plan

As mentioned previously in this report, human powered water sports are on the increase in the nation and in Virginia's Northern Neck. Since the Northern Neck region is surrounded by water on three sides, it is logical that there is a need for recreational water trails for residents and tourists alike to enjoy the local waterways.

NNPDC, NNCBPA, and NNTC staff collaborated on creating additional water trails in Westmoreland County to complement the two water trails that were created in the last grant year (FY11). This grant year, NNPDC staff created water trails for the Lower Machodoc Creek and for Bonum Creek, both in the eastern part of Westmoreland County. Each of these water trails utilize free public boat launch ramps and are day (or 1/2 day) short loop trails that can be paddled in 2-4 hours.

The Lower Machodoc Creek Water Trail has the Branson Cove Public Boat Ramp as its put in and take out point. Branson Cove Public Boat Ramp was leased to Westmoreland County for access to the Lower Machodoc Creek. Previously, there was a marina located next to Branson Cove Boat Ramp; however, the property was sold and the marina was torn down. The property owner planned on building multiple townhouses on the site; however, the downturn in the economy has meant that only a few of the townhouses have been built. The owner of the land around the Branson Cove Boat Ramp has not provided any parking for persons using the boat ramp, so this boat ramp is a put-in/take-out only with no designated parking is provided. Persons wishing to use the boat ramp need to find other places to park their vehicle or arrange to have someone drop them off.

Some of the highlights of the Lower Machodoc Creek Water Trail is a shipwreck near shore, an eroded island that shows on the topographic map, but not the aerial photo, and a route that takes paddlers next to Longwood University's Hull Springs Farm Living Shoreline Project. The Lower Machodoc Creek Water Trail is recommended for intermediate to advanced paddlers due to the wide mouth of the Lower Machodoc and the proximity to the wide open waters of the Potomac River. The total length of the Lower Machodoc Water Trail is 4.4 miles and ventures into nearby Aimes Creek, where paddlers can view the Hull Springs Living Shoreline Project from the water.

Bonum Creek Water Trail is downstream on the Potomac River from the Lower Machodoc Creek, and it is located north of the Yeocomico River, which forms the boundary between Westmoreland County and Northumberland County. Bonum Creek Water Trail begins (and ends) at Bonum Creek Public Boat Ramp. Bonum Creek Public Boat Ramp was previously owned by the Virginia Department of Game and Inland Fisheries and was in a state of disrepair in 2000. When Westmoreland County inquired about repairs to the boat ramp, staff at VDGIF indicated there was no funding available to repair the ramp. Westmoreland County then asked if VDGIF couldn't repair the ramp, would VDGIF gift the facility to Westmoreland County, who would rebuild the boat ramp and improve the site. VDGIF agreed to give the public access site to Westmoreland County, which utilized funds from the Northern Neck Chesapeake Bay Public Access Authority, to rebuild the boat ramp and pier. Now Bonum Creek Boat Ramp is one of the newest boat ramps in the Northern Neck. Bonum Creek does not have a lot of development on the shoreline and is one of the most natural water trails that the NNPDC has created. Adjacent to

the Bonum Creek Boat Ramp is Bonum's Oyster Company, Inc., a company that wholesales fish and shellfish. Visiting Bonum Creek, it is entirely possible that a traditional Chesapeake Bay deadrise workboat may be tied up to Bonum's Oyster Company's wharf.

The Bonum Creek Water Trail is located in sheltered Bonum Creek, so this water trail is ideal for beginner paddlers. As noted above, there should be numerous opportunities to view wildlife on the water trail as there is little residential development around Bonum Creek. The total length of the Bonum Creek Water Trail is 3 miles, so it is one of the shorter water trails NNPDC staff have created. As the case with Greenvale Creek, the more advanced paddlers can venture out into the main stem of the Potomac River if they are seeking a longer route to paddle.

As the case with the Lancaster County Water Trail Plan, the water trail maps are hosted online at the Northern Neck Tourism website <<http://www.northernneck.org>>. Similar to the Lancaster County Water Trail Plan, the Westmoreland County Water Trail Plan now has a graphic user interface to reach the loop water trail maps. The new graphical user interface is a map of the Westmoreland County Potomac River Water Trail, a long distance trail for expert paddlers wishing to traverse Westmoreland County. The Westmoreland County Potomac River Water Trail follows the Potomac River from King George to the Yeocomico River in Northumberland County and includes stops in Colonial Beach, George Washington's Birthplace, Westmoreland State Park, Horsehead Cliffs, Currioman Landing Public Boat Ramp, Branson Cove Public Boat Ramp, Coles Point Marina, Bonum Creek Public Boat Ramp, and the Village of Kinsale's public pier. The interactive map is set up the same as the Lancaster Water Trail interface with the composite map, containing links to the smaller loop trails, as well as a link to a logistical support webpage that details places to *eat, sleep, do* and *more info* with number-keyed points of interest shown on the county wide water trail.

As mentioned before, NNPDC staff, NNCBPAA staff, and NNTC staff plan on promoting the new water trail networks this spring to generate interest in paddling the Northern Neck.

The web address for the Northern Neck Tourism Commission website for Water Trails is:

<http://www.northernneck.org/NNTC-PAGES/recreation.htm#watertrails>

The web address for the Westmoreland County Water Trail(s) is:

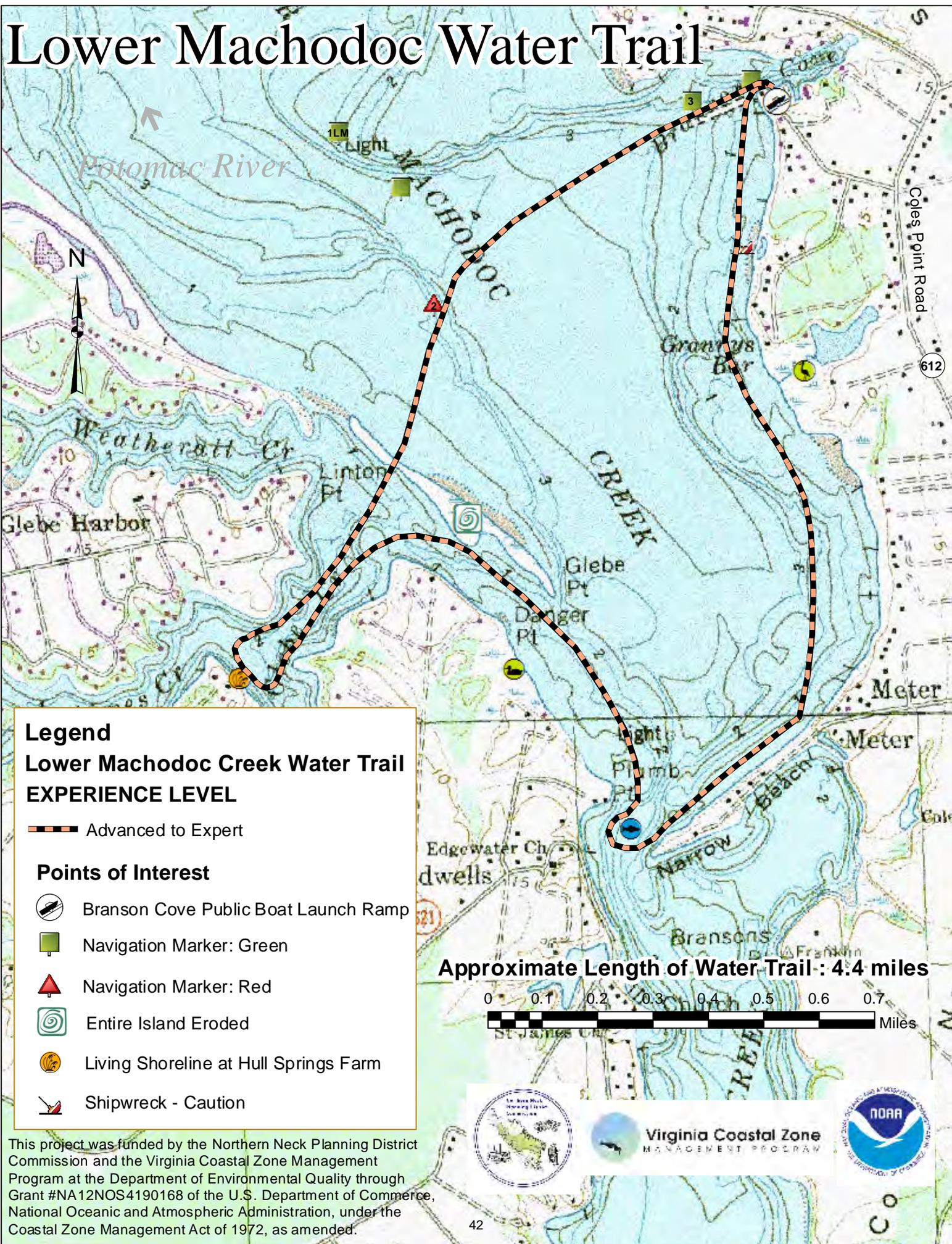
<http://www.northernneck.org/NNTC-PAGES/Westmoreland-Water-Trails.htm>

(click on the labels of features in the map to access the water trails, and logistics page)

The following pages show the Lower Machodoc Creek Water Trail information, the Bonum Creek Water Trail information, and the Westmoreland County Potomac River Water Trail information produced by NNPDC staff for the FY12 VACZM Task 45 Grant.

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Lower Machodoc Water Trail



Legend

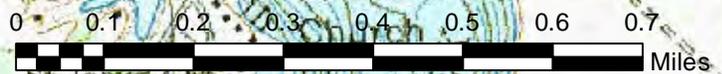
Lower Machodoc Creek Water Trail EXPERIENCE LEVEL

Advanced to Expert

Points of Interest

- Branson Cove Public Boat Launch Ramp
- Navigation Marker: Green
- Navigation Marker: Red
- Entire Island Eroded
- Living Shoreline at Hull Springs Farm
- Shipwreck - Caution

Approximate Length of Water Trail: 4.4 miles



This project was funded by the Northern Neck Planning District Commission and the Virginia Coastal Zone Management Program at the Department of Environmental Quality through Grant #NA12NOS4190168 of the U.S. Department of Commerce, National Oceanic and Atmospheric Administration, under the Coastal Zone Management Act of 1972, as amended.



Lower Machodoc Water Trail

Potomac River



Coles Point Road

612

Legend

Lower Machodoc Creek Water Trail EXPERIENCE LEVEL

 Advanced to Expert

Points of Interest

-  Branson Cove Public Boat Launch Ramp
-  Navigation Marker: Green
-  Navigation Marker: Red
-  Entire Island Eroded
-  Living Shoreline at Hull Springs Farm
-  Shipwreck - Caution

Approximate Length of Water Trail : 4.4 miles



This project was funded by the Northern Neck Planning District Commission and the Virginia Coastal Zone Management Program at the Department of Environmental Quality through Grant #NA12NOS4190168 of the U.S. Department of Commerce, National Oceanic and Atmospheric Administration, under the Coastal Zone Management Act of 1972, as amended.



The majority of the Lower Machodoc Creek Water Trail is intended for advanced to expert paddlers due to the large width of the Lower Machodoc Creek mouth and proximity to the open water of the Potomac River.

The Lower Machodoc Creek is a relative major creek that is off the Potomac River on the Virginia side between the Nomini River and Coles Point in northern central Westmoreland County. The Lower Machodoc Creek is relatively exposed due to its wide creek mouth at the confluence of the Potomac River.

This area near Bonum Creek is home to many species of fish, and shellfish. Back in the 1970s a local waterman caught a 300 pound bull shark in his net. The photo to the right is the shark, hung up on a tree next to the water trail put in point, Branson Cove boat ramp.



Large Bull Shark, caught in the 1970's, with Branson Cove Boat Ramp in background

As history tends to repeat itself, and a local waterman on the Maryland side of the Potomac River, about fifteen miles down river near Point Lookout, caught two bull sharks in his nets on August 20, 2013. Bull sharks can tolerate low salinity and are often found in brackish to fresh tidal rivers and creeks. There is not a consensus for the reasons behind the bull shark traveling into rivers, but it is likely the sharks were here to reproduce as the young are born in freshwater and as they get older, head out to saltier waters. It is very unlikely paddlers will encounter a bull shark in Lower Machodoc Creek.

Following the water trail, the western most section of the trail turns into Aimes Creek where paddlers can view a successful living shoreline project at Hull Springs Farm, owned by Longwood University. Living shorelines are marsh grasses designed to protect shorelines, and are the preferred alternative over hardened shoreline treatments such as rip rap or bulkheads. Hull Springs Farm is a premier environmental education facility and has been active in the region supporting local school teachers and students. A wetland mitigation bank is being planned to restore wetland areas on the property that have been previously drained for farming and forestry.



Shoreline Erosion
Left: Before

Natural Shoreline
Right: After Treatment

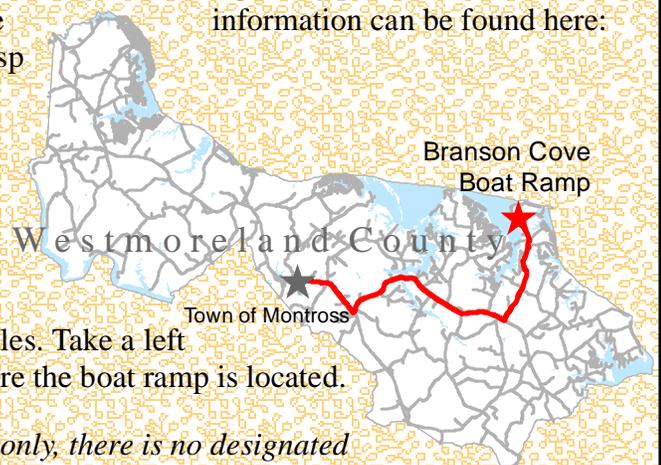
Before boating be sure to check the marine forecast from the National Weather Service for the Potomac River from Cobb Island to Smith Point area by clicking on the lower Potomac River polygon on the map at:

<http://www.erh.noaa.gov/er/akq>

Boaters also need to be in compliance with Virginia boating equipment regulations regarding personal flotation devices, sound producing devices, and visual distress signals. More information can be found here: <http://www.dgif.virginia.gov/boating/wog/equipment-regulations.asp>

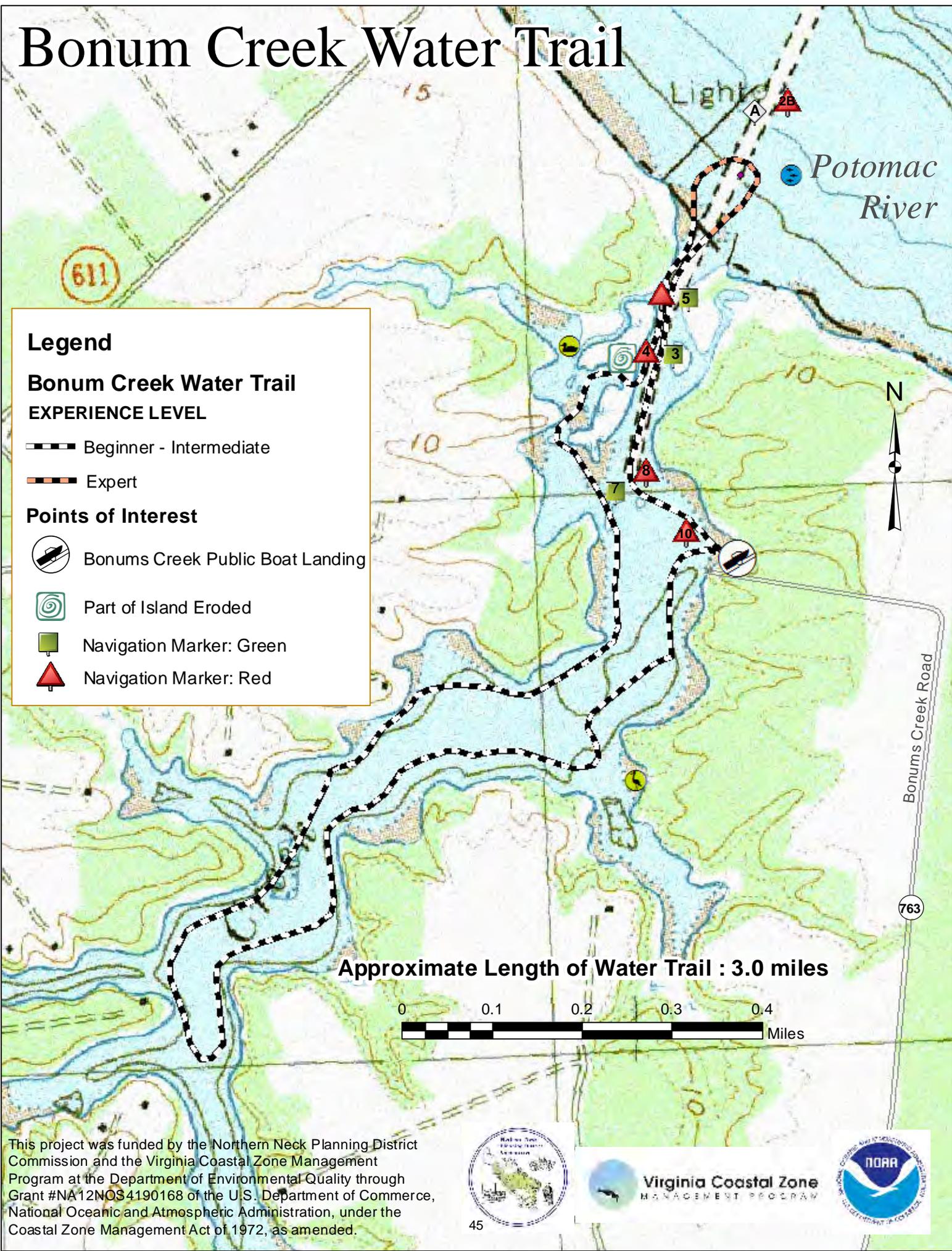
Directions to access Lower Machodoc Creek from the Branson Cove public boat launch follow.

From Montross in Westmoreland County, turn left onto Cople Highway, Rt. 202 towards Mt. Holly and Hague. Approximately 8.5 miles from the intersection of Rt 3 and Rt. 202, turn left onto State Rt. 612 Coles Point Road and follow for 5.2 miles. Take a left onto State Rt. 679, Branson Cove Road, and follow to the end where the boat ramp is located.



Note: Branson Cove boat ramp is for boat launching and retrieval only, there is no designated parking area for the Branson Cove boat ramp.

Bonum Creek Water Trail



Legend

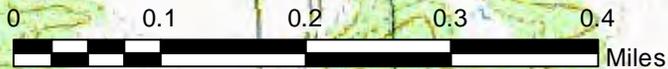
Bonum Creek Water Trail EXPERIENCE LEVEL

- Beginner - Intermediate
- Expert

Points of Interest

- Bonums Creek Public Boat Landing
- Part of Island Eroded
- Navigation Marker: Green
- Navigation Marker: Red

Approximate Length of Water Trail : 3.0 miles



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Bonum Creek Water Trail

Potomac River

Legend

Bonum Creek Water Trail EXPERIENCE LEVEL

-  Beginner - Intermediate
-  Expert

Points of Interest

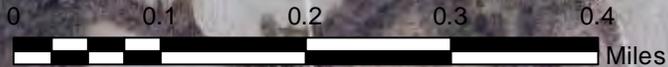
-  Bonums Creek Public Boat Landing
-  Part of Island Eroded
-  Navigation Marker: Green
-  Navigation Marker: Red



Bonums Creek Road

763

Approximate Length of Water Trail : 3.0 miles



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46



The majority of the Bonum Creek Water Trail is intended for beginner to intermediate paddlers, with the Potomac River section requiring advanced to expert paddling skills.

Bonum Creek is a sheltered creek that is off the Potomac River on the Virginia side in eastern Westmoreland County, upriver from the larger Yeocomico River. While Bonum Creek is relatively small, it makes an ideal paddling environment, due to its sheltered nature and lack of residential development along the shoreline. As a result of the relatively natural setting along the banks of Bonum Creek, paddlers are likely to see more waterfowl and wildlife along the shoreline. If boaters decide to venture to the mouth of Bonum Creek, and into the Potomac River, you will see a jetty on the port (left) side as they leave the creek. A jetty is an armored stone wall that juts out into the water to protect the creek navigation channel from shoaling in. Sand is normally transported along the shoreline, this is called littoral drift, and a jetty is designed to intercept this littoral drift and collect the sand and sediment.

This area near Bonum Creek is home to many species of fish and shellfish. Bonum Creek is located near the edge of the ideal salinity range for oysters. The two rivers downstream of Bonums have thriving oyster beds as well as oyster aquaculture. Next door to the Bonum Creek boat launch ramp is an oyster house, Bonums Oyster Company, Inc. Bonums Oyster Company is a wholesaler of local seafood and oysters, so boaters may see a Chesapeake Bay deadrise workboat tied up to their wharf.

In the picture to the right, is Bonum Creek public boat launch ramp, which recently was transferred from the Virginia Department of Game and Inland Fisheries to Westmoreland County. Westmoreland County undertook a renovation of the site and reconstructed the boat ramp and courtesy pier.



Bonum's Creek Landing
Public Boat Launch Ramp



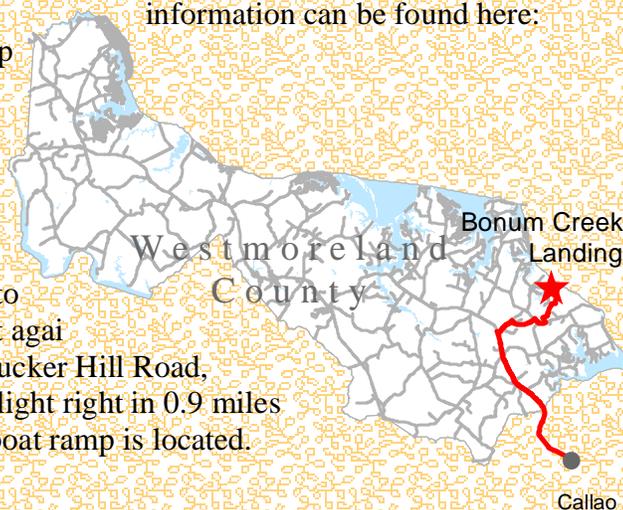
In 1608, this land was near the border between two woodland Algonquin Indian chiefdoms, the Chicacoan to the east and the Matchotic to the west. Each chiefdom was ruled by a leader called a Werowance. The Werowance lived in the largest village, which was the center of trade and activity in the chiefdom, similar to our county seats. Other smaller villages were scattered through the chiefdom, along with temporary hunting and gathering camps, sometimes near the mouth of creeks. There is no historical record of skirmishes between the two chiefdoms, but likely there was some conflicts over prime hunting grounds or over oyster gathering bars at times of low tide.

Before boating be sure to check the marine forecast from the National Weather Service for the Potomac River from Cobb Island to Smith Point area by clicking on the Potomac River polygon on the map at:
<http://www.erh.noaa.gov/er/akq>

Boaters also need to be in compliance with Virginia boating equipment regulations regarding personal flotation devices, sound producing devices, and visual distress signals. More information can be found here:
<http://www.dgif.virginia.gov/boating/wog/equipment-regulations.asp>

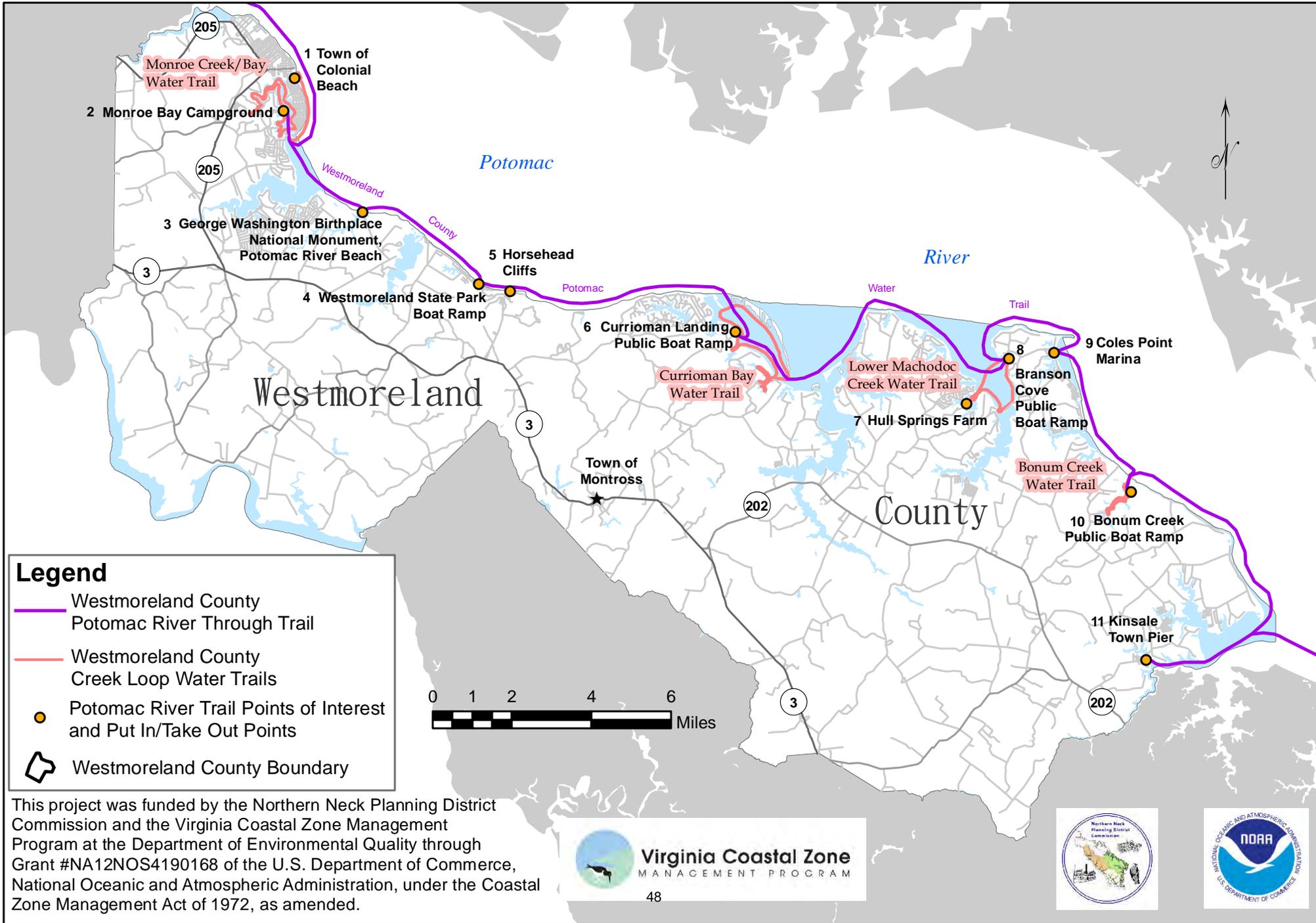
Directions to Bonum Creek Landing public boat launch follow.

From Callao in neighboring Northumberland County, turn left onto Hampton Hall Road, Rt. 202 towards Westmoreland County. Approximately eight miles from Callao on on Rt. 202, turn right onto State Rt. 611 Zion Church Road, follow for 0.9 miles and turn right again onto Rt. 610 Rose Tucker Road. Go 1.3 miles and turn right onto Tucker Hill Road, Rt. 606. After 0.6 miles, turn left onto Rt. 663, Kelly Road, with a slight right in 0.9 miles onto Rt. 763 Bonums Creek Road and follow to the end where the boat ramp is located.



Please Click on the Text Labels on the Map to Learn More

Westmoreland County Water Trails



Legend

-  Westmoreland County Potomac River Through Trail
-  Westmoreland County Creek Loop Water Trails
-  Potomac River Trail Points of Interest and Put In/Take Out Points
-  Westmoreland County Boundary

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Westmoreland County Potomac River Water Trail Logistics

Points	Where	Eat	Sleep	Do	More info
1	Town of Colonial Beach	The Dockside Restaurant 1787 Castlewood Drive 804.224.8726 Denson's Grocery 117 Washington Avenue 804.224.4121 Wilkerson's Seafood Restaurant 3900 McKinney Blvd. 804.224.7117 http://www.colonialbeachva.net/visitor-resources/dining/	River Terra Retreat 37 4th Street 703.304.4274 Bell House Bed & Breakfast 821 Irving Ave. 804.224.7000 Westmoreland State Park 1650 State Park Road 804.493.8821	Pedestrian, bike and golf-cart-friendly downtown area, boardwalk Launch or Land a kayak	www.northernneck.org http://www.colonialbeachva.net/visitor-
2	Monroe Bay Campground		1412 Monroe Bay Circle Colonial Beach, VA 22443 804.224.7418	Fish, crab, explore Launch or Land a kayak	http://monroebaycampground.com/m/
3	George Washington's Birthplace National Monument	Snacks available at GWB NM	Westmoreland State Park 1650 State Park Road 804.493.8821	Visit the working farm where George Washington was born, and tour the Memorial House Launch or Land a kayak (Potomac River Beach only)	If landing a watercraft on the Potomac River Beach, see: http://www.nps.gov/gewa/playourvisit/things2know.htm
4	Westmoreland State Park		Westmoreland State Park 1650 State Park Road 804.493.8821	Hike, swim (in pool), watch wildlife, search for fossils Launch or Land a kayak	http://www.dcr.virginia.gov/state_parks/wes.shtml
5	Horsehead Cliffs			Search for fossils	http://saki.iwarp.com/120831-0903/horseheadCliffs1.JPG
6	Currioman Landing Public Boat Ramp	Stratford Hall	Inn at Stratford Hall	Visit the home of the Lees of Virginia, and Birthplace of Robert E. Lee Launch or Land a kayak	http://stratfordhall.org/ http://www.northernneck.org
7	Hull Springs Farm			Examine living shorelines	http://www.longwood.edu/hullspringsfarm/
8	Branson Cove Public Boat Ramp	The Landing at Coles Point 804.472.5599 http://thelandingatcolespoint.com/	Cottages or Campground at Coles Point Marina	Launch or Land a kayak	
9	Coles Point Marina	The Landing at Coles Point 804.472.5599	Cottages or Campground at Coles Point Marina 190 Plantation Drive Hague, VA 22469 804.472.4011	Boat, fish, crab, watch wildlife Launch or Land a kayak	
10	Bonum Creek Public Boat Ramp			Kinsale Museum, Village of Kinsale Launch or Land a kayak	http://www.kinsalefoundation.org/
11	Kinsale Town Pier			Kinsale Museum, Village of Kinsale, Launch or Land a kayak	http://www.kinsalefoundation.org/

VII. Benefits Accrued from Prior VACZM Grants

Northumberland County Digital Tax Map Revision

NNPDC staff have been working on revising Northumberland County's digital tax maps through VACZM's PDC technical assistance grant since FY04. NNPDC staff would revise five tax maps each grant year and have updated 45 of the 53 tax maps in those nine years. NNPDC staff have been working with Northumberland County staff each year to get the latest versions of the hard copy tax maps for revisions and have had Northumberland County staff review tax maps after the revisions have been made. In several instances, revision of the tax maps were used to assist in other projects. Northumberland County used the revised digital tax maps for notifying persons in the Reedville Sewer System Area that a signup to connect to the sewer system was available. Northumberland County also used the revised digital tax maps to assist in notifying landowners of the availability and then selection of the site for the creation of the Callao Sewer System in 2009. NNPDC staff have completed revising the remainder of the Northumberland County tax maps through another grant funding source, but Northumberland County will continue to reap the benefit of VACZM grant assistance whenever they utilize the revised digital tax maps in their Geographic Information System (GIS).

Richmond County Agricultural Data Revision Database

NNPDC staff originally created a GIS layer of known agricultural fields through the VACZM PDC Technical Assistance Program in FY98. Originally, this data was created to allow better tracking of nutrient management planning for agricultural fields under Virginia's Tributary Nutrient Reduction Plans (the forerunner of the Chesapeake Bay Nutrient and Sediment TMDL) as well as for compliance with Virginia's Chesapeake Bay Preservation Act. NNPDC staff contacted the local Natural Resources Conservation Service (NRCS) office and obtained the aerial photographs that depicted the farm field outlines drawn over the black and white aerial photographs. Each farm field had a tract and field number that was used by the NRCS and SWCD to identify the field. NNPDC staff had the same year black and white aerial photos that had been scanned and registered for use in the NNPDC Geographic Information System (GIS). NNPDC digitized all of the known farm fields in the four-county Northern Neck region from the black and white aerial NRCS photographs. However, those scanned black and white aerial photographs were only registered and not ortho-rectified: the further one is from the image center, the higher the distortion from the camera lenses. The Northern Neck Farm Inventory was useful to the counties in identifying lands being used for agricultural purposes and helped each county measure the amount of land devoted to agriculture. In FY05, NNPDC staff obtained ortho-rectified aerial imagery for use in the NNPDC GIS and noted that many of the farm fields digitized in FY98 had positional accuracy problems. NNPDC updated Lancaster County's farm field inventory in FY05 and contacted the local Soil and Water Conservation District to obtain information on nutrient management planning in Lancaster County. This grant year (FY12) NNPDC staff are building on the previous work through VACZM funding and updated the Richmond County farm inventory using 2009 digital aerial photographs, deleting farm fields that had been converted to other uses (such as forestry or residences) and adding farm fields that were not originally in the farm inventory (only those farm fields that participated in federal or state government agricultural programs were present on the original

black and white photographs). After updating the farm field inventory for Richmond County, NNPDC staff, utilizing the GIS, intersected the agricultural fields with the digital tax maps to identify the landowners of the agricultural properties. NNPDC staff removed duplicate landowner names from the agricultural landowner database that was created from the GIS analysis and imported the data into MS Excel for use in a mail merge document. This database could be used in the future by Richmond County for mailing notifications to the citizens of Richmond County of the Virginia Chesapeake Bay Act requirement to have nutrient management plans on all lands in agricultural production. If the original farm field inventory was not created back in FY99, then this revised and updated product would not have been available to Richmond County to assist them in compliance with Virginia's Chesapeake Bay Act.

Sloping Sandy Land, Steep Sandy Land Map

NNPDC staff, who through previous VACZM grant work with Blue Green Infrastructure Planning (NNPDC Focal Area Blue Green Infrastructure Protection Grant FY09, Task 12.06), had worked with the Lancaster County Planning Commission to help identify areas in the county that might be poorly suited to development. NNPDC staff had explained at an earlier meeting that there are areas within the county that are better to develop than others. NNPDC staff made an analogy to relate this concept by discussing farmers and prime agricultural lands. NNPDC staff noted that farmers get the highest yields from prime agricultural lands and emphasized that the farmers get these highest yields with the lowest amount of inputs. More marginal agricultural soils may approach the yields of prime agricultural soils but would require more inputs such as fertilizer and pesticides, thus costing the farmer more and possibly impacting the environment. NNPDC staff stated that the same is true for the development potential on soils. Some soils may have shrink-swell properties or a steep slope. While there are engineered practices to accomplish development on sites with these types of soils, they are more expensive than building on a site with few such limitations. The additional cost in designing these structures and the additional material and labor cost installation add significant costs to the development. NNPDC staff added that if the structures are not installed as designed, they can fail and cause environmental problems as well as additional costs to the owner of the structure. NNPDC staff then noted that perhaps the areas within Lancaster County that have many limitations to development might be best to leave in a natural state to protect the native vegetation, hold the soil in place, and provide wildlife habitat. The Lancaster County Planning Commission requested NNPDC staff create a map of some of these areas with several limitations to development. NNPDC staff mapped soils with steep slopes and high erosive potential in Lancaster County and presented them to the Lancaster County Planning Commission. NNPDC staff displayed the map of Sloping Sandy Land and Steep Sandy Land soil classes from the USDA soil survey within the county. NNPDC staff noted that these highly erosive soils line most all waterways of Lancaster county might deserve additional protection to stay in a natural state and avoid complications from development activities. NNPDC staff explained that once these soils are disturbed and the vegetation removed, these soils are notoriously difficult to stabilize as there is relatively little organic content to the soils to bind them together and consist mainly of sand grains. Therefore, soil erosion from a developed site in these areas after grading is possible; continued soil erosion after construction is a distinct possibility as well. While the Lancaster County Planning Commission did not choose to adopt a Blue Green Infrastructure Protection Plan for Lancaster County at that time, yet all of the Lancaster County Planning Commission members gained valuable information from NNPDC

staff regarding environmental considerations for development through the NNPDC Blue Green Infrastructure Protection Planning Grant.

Town of Kilmarnock staff told NNPDC staff that the Center for Watershed Protection was working with the town on a Kilmarnock Watershed Assessment Report in late 2012. Center for Watershed Protection staff emailed NNPDC staff in January 2013 for more information on the Suffolk Scarp in reference to their fieldwork that found significant erosion in the headwaters in several streams around the Town of Kilmarnock in Lancaster County. NNPDC staff, utilizing work completed from the FY09 Blue Green Infrastructure grant, told the Center for Watershed Protection staff about the USDA soil survey for Lancaster County and of the Sloping Sandy Land and Steep Sandy Land Soil categories. NNPDC staff noted that it is likely the areas of erosion noted in the field work might have been located in these soil classes. NNPDC scanned the relevant page of the Lancaster Soil Survey and modified the Lancaster County Sloping Sandy Land and Steep Sandy Land map created in FY09 to zoom to the area of the Town of Kilmarnock to illustrate the distribution of those soils in relation to the town. Center for Watershed Protection staff were pleased that NNPDC environmental staff had insight into a problem they had observed and were hopeful that special considerations for erosion might be considered when developing in these soil class areas. Center for Watershed Protection staff included the map in the Kilmarnock Watershed Assessment Report (see Coastal Management Support, Compendium of Maps, Lancaster County in this report for a copy of the map produced). The entire Kilmarnock Watershed Assessment Report can be downloaded here (4.31 Mb in size): http://www.cwp.org/online-watershed-library/doc_download/621-kilmarnock-watershed-assessment-report

Lancaster and Westmoreland Water Trails

NNPDC staff have been working on water trails for these two counties under last year's (FY11, Task 45) and under this year's (FY12, Task 45) VACZM Technical Assistance Grant. In FY11, NNPDC created the Mulberry/Deep Creek Water trail around Belle Isle State Park and the Little Oyster Creek Water Trail around Windmill Point in Lancaster County. Building on the initial water trails, NNPDC created the Greenvale Creek Water Trail and the Corrotoman River Water Trail, and created a Lancaster County Rappahannock River Water Trail that connects all of the shorter loop trails into a long distance through water trail. Also, in Westmoreland County, NNPDC staff created in FY11 the Monroe Creek/Bay Water Trail, and the Currioman Bay Water Trail. Following up in FY12, NNPDC staff created the Lower Machodoc Creek Water Trail, and the Bonum Creek Water Trail, and a Westmoreland County Potomac Water Trail for the long distance expert paddlers. All of these water trail maps are on the Northern Neck Tourism website at <www.nothernneck.org>, click on the "Visit" tab, then the "Recreation" tab, then "Nature and Water Trails" tab to get to the water trails.

Continued VACZM grant funding allows NNPDC staff to phase projects that are too big to accomplish in a single grant year. Being able to build on work year after year allows larger projects to be completed, and allows the past projects to be modified to be of most use to citizens as current (or future) circumstances may dictate.

Summary

Continued stable VACZM PDC Technical Assistance Funding allows PDCs to maintain coastal management support for their counties over many years. The continued funding allows PDC staff to gain institutional knowledge pertaining to coastal and environmental issues that may have happened in the past and apply those lessons learned into the future. In addition, PDC staff form productive relationships with county staff and can assist them better in coastal management support with knowledge of the particular history of issues that has occurred recently within a specific county. This local knowledge is invaluable when seeking management solutions to coastal issues. Being able to assist counties when needed on environmental and resource issues has allowed county staff to depend on the PDCs for technical assistance allowing them to focus on local land use issues, departmental operations, and environmental inspection and enforcement.