November 2023

Middle Peninsula Planning District Commission

CZM TECHNICAL ASSISTANCE AND RESILIENCE PROGRAM

This project, Task # 44 was funded by the Virginia Coastal Zone Management Program led by the Virginia Department of Environmental Quality through Grant # NA22NOS4190187 of the U.S. Department of Commerce, National Oceanic and Atmospheric Administration, under the Coastal Zone Management Act of 1972, as amended.

Contents

Executive Summary

The Technical Assistance (TA) Program, funded through the Virginia Coastal Zone Management Program (Virginia CZM), provides Middle Peninsula Planning District Commission (MPPDC) staff the opportunity to create and implement adaptive management techniques, enhance communication between local, regional, and state stakeholders, and inform planning decisions by local, regional, and state coastal managers. The TA Program has been the backbone of coastal zone management in the Middle Peninsula by providing a resource that allows local governments to address coastal zone issues that may otherwise go unanswered. Specifically, the TA Program provides the MPPDC with the necessary administrative framework to assist rural Middle Peninsula coastal localities (i.e., staff, elected officials, and community level groups) in the enhancement of coastal zone management tools and techniques that balance economic development while protecting coastal resources.

Middle Peninsula localities rely annually on MPPDC staff to provide professional and technical coastal zone management planning assistance on national, regional, and local coastal issues, and associated policy and legislation. Over the past year, the MPPDC has made significant strides in providing education and technical assistance on issues such as the regional impacts of dredging and beneficial use of dredged material, nature-based flood mitigation solutions, and resiliency. For the Federal FY22 grant, there were five tasks outlined and completed under the work program:

Coastal Management Analysis and Policy Support. MPPDC staff provided coastal management support to local government elected officials, chief administrative officers of local governments, local planning staff, local planning commissions, and wetlands board staff.

Local and State Planning Coordination. MPPDC staff attended, convened, and participated in various monthly and quarterly meetings with local government planners, government administrators, and other appropriate government and NGO committees to assist with improved coastal planning. Through these meetings, Coastal Planners illuminate choices which policy makers can use to help inform local and regional decisions. Also, MPPDC staff provided five (5) trainings throughout the year.

Middle Peninsula Chesapeake Bay Public Access Authority (MPCBPAA) Work Plan & Support for Online Facility Reservation System. MPPDC staff assisted the MPCBPAA in the implementation of their annual work plan. Three (3) meetings were held throughout the year.

Benefits Accrued from Ongoing and Prior CZM Grants. MPPDC contracted with Consociate Media to develop an ongoing strategic outreach and awareness initiative to inform localities and stakeholders of the PDC and MPCBPAA's work and the benefits of Virginia CZM funding.

Enhancing Regional Resiliency & State Level Resiliency. MPPDC staff continued to enhance the Middle Peninsula Fight the Flood (FTF) program with upgrades to the database and website to ultimately encourage citizens to register for the program and connect them with contractors offering resiliency or mitigation solutions and financial incentives. During this project period, MPPDC staff submitted 45 resiliency grant applications requesting more than $73.3 million to various funding agencies.

Introduction

With funding through Virginia CZM, MPPDC staff were able to provide coastal management support and coordination to local governments, their local planning staff, and elected officials. MPPDC staff were also able to collaborate and provide guidance to other planning district commissions on coastal issues, including resiliency planning and mitigating for flooding with nature-based solutions, dredging and beneficial use, and public land access. This report will touch on the five (5) products of this project.

Product #1: Coastal Management Analysis and Policy Support

MPPDC's Coastal Resources Technical Assistance (TA) Program provides the necessary administrative framework to assist rural coastal local governments across the Middle Peninsula with access to enhanced coastal zone management tools and techniques that balance economic development with protecting coastal resources.

The nine (9) local governments of the Middle Peninsula region relied upon MPPDC staff for ongoing analysis and policy support for emerging issues to assist and improve local and regional planning efforts. Technical policy assistance focused on a variety of topics including dredging and beneficial reuse; flood mitigation through nature-based solutions and resilience; monetizing natural resources; and septic. For a list of staff activities throughout the grant year, please see Appendix A.

Example of Coastal Management Support

MPPDC staff worked with Delegate Keith Hodges, Virginia General Assembly 98th District concerning the development of approximately four (4) bills focusing on addressing key issues impacting rural coastal localities. MPPDC staff coordinated with Delegate Hodges to develop a strategy for funding and eradicating blue catfish and invasive species in most of the rivers of Chesapeake Bay. Consequently, House Bill (HB) 1664 was passed which established a Blue Catfish Processing, Flash Freezing, and Infrastructure Grant Program, that also creates a new economic development program for rural coastal local governments. MPPDC staff assisted with three (3) other bills:

- **HB 1804 Tidal wetland mitigation bank.** MPPDC staff testified at the General Assembly in support of this bill. This HB was passed and modified the trading boundaries making it easier for those generating credits in rural coastal areas to sell credits.
- **HB 1941 Septic Systems; loans to local governments or other entities**. Authorizes the State Water Control Board to provide loans from the Virginia Water Facilities Revolving Fund to a local government for the purpose of correcting onsite sewage disposal problems (small water facility projects) to protect or improve water quality and prevent the pollution of state waters.
- **HB 2393 Coastal resilience policy; research university collaborative**. Authorizes the Secretary of Natural and Historic Resources and all relevant agencies, when setting coastal resilience policies, to seek input and consultation from the Commonwealth's research university collaborative, including the Virginia Coastal Policy Center, Virginia Sea Grant (VASG), Virginia Cooperative Extension, and Institute for Coastal Adaptation and Resilience. The bill permits the Secretary and all relevant agencies to utilize such research university collaborative's expertise, research, and data analysis for the implementation of water management techniques and coastal resilience strategies.

See the report for a final General Assembly summary that captures all bills that MPPDC staff contributed to: MPPDC End of Session Report 2-28.pdf.

MPPDC staff also convened a meeting with Dr. Derek Aday, Director of the Virginia Institute of Marine Science (VIMS) and Dean of William & Mary's School of Marine Science and Delegate Keith Hodges to

discuss approaches to make the work of VIMS more relevant to the needs of rural coastal Virginia communities.

Finally, MPPDC staff also coordinated with Delegate Keith Hodges for a visit by Lieutenant Governor Winsome Seares. The Lieutenant Governor requested information on rural coastal economic development issues.

Leveraged Accomplishment

The 2023 General Assembly passed HB 1664, which established the Blue Catfish Industries Development Planning Grant Program and the Blue Catfish Flash Freeze Grant Program to encourage efforts by political subdivisions to support the blue catfish industry and the flash freezing of such catfish. Grants and loans will be awarded to such subdivisions to support efforts to attract value-added facilities using blue catfish. Under the program, localities may apply for grants or loans after having established a relationship with a new or expanding business that is expanding blue catfish processing, flash freezing, or value-added facilities using blue catfish. In October 2023, Virginia Department of Agriculture and Consumer Services (VDACS) announced that funding is available through the Governor's Blue Catfish Processing, Flash Freezing and Infrastructure Grant Program for project that will help expand blue catfish fishing and processing within the Commonwealth. The new program awards reimbursable grants up to $250,000 to support infrastructure development projects that directly support local food production, enhance environmental sustainability, and demonstrate a broad community benefit.

Product #2: Local and State Planning Coordination

MPPDC staff hosted monthly and quarterly meetings as a forum and information exchange between the local planning staff, local government administrators, and local government appointed committees. This forum provided for continued coordination of coastal local planning efforts, specialized training opportunities and the impetus for leadership in progressive coastal zone planning techniques. Training topics revolved around assisting with implementation of existing state and federal regulations including, but not limited to repetitive flooding and coastal resiliency; Chesapeake Bay Preservation Area (CBPA); stormwater management (SWM) and erosion and sediment control (ESC); septic pump out, and other related matters. Forums, training, and meeting activities served as a conduit for information exchange between various user groups about state/federal initiatives and to solicit input from localities on state/federal initiatives. Coordination occurred at the local level for administrators and planners (monthly, bimonthly, and quarterly), and other appropriate committees, as necessary.

MPPDC staff convened eleven (11) meetings of the local government administrators on the following dates: 10/14/22; 12/9/22; 1/13/23; 2/10/23; 3/10/23; 4/14/23; 5/12/23; 6/9/23; 7/14/23; 8/11/23; and 9/8/23. Additionally, three (3) meetings of the MPCBPAA were convened to discuss ongoing and new issues related to coastal zone management (Meeting Dates: 1/13/23; 3/10/23; and 6/5/23). Additionally, MPPDC staff hosted five (5) trainings throughout the grant year, including the following:

1. **1/25/23 – Floodplain Management Technical Assistance with FEMA, Department of Conservation and Recreation, and Hampton Roads Planning District Commission.** At the January monthly Local Planners meeting staff from the Federal Emergency Management Agency (FEMA) and Virginia Department of Conservation and Recreation (DCR) discussed permits for manmade impacts in the floodplain. FEMA shared a presentation and led a question-and-answer period with local staff, administrators and managers of a policy process named "RAD" (Review,

Assess, and Document process) which allows for non-impact improvements to occur without the need for a permit to be issued. There were 18 people at this training.

2. **2/28/23 – VA Stormwater Management Program Training for Local Government Staff.** At the February monthly Local Planners meeting, MPPDC staff coordinated with Virginia Department of Environmental Quality (DEQ) staff to hold a webinar for local staff on the Chesapeake Bay Preservation Act and the associated Erosion and Sediment Control/ Stormwater Management responsibilities for opt-out localities. There were 21 people at this training.
3. **5/25/23 - Training between VIMS and Coastal PDC's regarding the broader impacts of VIMS tools and studies.** At the quarterly coastal PDC meeting MPPDC staff coordinated with VIMS to strengthen the relationship between the parties and discuss the broader impacts training as a foundation for understanding needs, wants, utility, and collaboration of the partnership. There were 40 people at this training.
4. **5/31/23 – CBPA & ESC/SWM Coordination Meeting for Opt-Out Localities Training.** At the May local planners meeting MPPDC staff coordinated with DEQ staff to discuss the Virginia Stormwater Management program for opt-out localities There were 10 people at this training.
5. **8/30/23 – Transferring CBPA Septic Pumpout responsibilities from localities to Virginia Department of Health (VDH) training.** At the August local planner meeting MPPDC staff coordinated with VDH staff to discuss how localities can submit pumpout data. VDH staff also shared that there is a portal available for service providers to submit local data since providers are now required to report to VDH per by state code. There were 12 people at this training.

Product #3: MPCBPAA Work Plan & Support for Online Facility Reservation System

MPPDC staff assisted the MPCBPAA with project facilitation, research, and data collection to support implementation of the MPCBPAA annual work plan. MPPDC staff assisted the Virginia Interactive with Online Facility Reservation system design by providing technical planning assistance including but not limited to outdoor trail planning, public access use capacity assessment, site mapping, improved social media awareness, and other aspects of coastal recreational planning to enhance the user's interactive experience with the reservation system. MPPDC staff convened three meetings of the MPCBPAA throughout the project year. Meeting dates were January 13, 2023; March 10, 2023; and June 5, 2023. In conjunction with the meetings, MPPDC staff also worked to advance the work of the MCBPAA, including:

- **Land management and facilitation of land donations –** MPPDC staff worked with a property owner to refine the long-term management plan of the Greenway Farm in Gloucester County, Virginia. The property is 97.251 acres and will offer additional recreational access to Middle Peninsula citizens and visitors.
- **Go Virginia Region 5/6 Rural Challenge –** This project leverages MPCBPAA properties to bring new businesses providing innovative coastal resiliency services to the Middle Peninsula and beyond. This is a unique opportunity to utilize publicly owned waterfront properties as field stations for research and development and collaborated work research to test new approaches and build businesses. VASG partnered with the United States Department of Agriculture (USDA)'s Rural Innovation Stronger Economy (RISE) program and conducted a $1.5M Rural Coastal Community Resilience Challenge. Four (4) winning proposals were selected and address septic systems, building rehabilitation, flood mitigation, and beneficial reuse of dredged material. Each proposal will receive $200,000 to implement their solution using MPCBPAA owned property. During 2023, the first elevated septic system in Coastal Virginia arrived at the

Captain Sinclair's Recreational Area brick rancher, owned by the MPCBPAA. The system is scheduled for installation before 2024. Seven (7) different shoreline technologies have been installed at the Captain Sinclair's Canal illustrating coastal innovation incorporating geo textiles, concrete formed products, and dredge spoil material management.

- **Virginia Housing Development Authority (VHDA) Grant** – The MPCBPAA continued to implement the $1M housing grant awarded in 2022 to rehabilitate and construct at least ten (10) affordable public workforce housing units for low-income people that need to live and work near the water as well as create new revenue streams to serve as sustainable funding to support the work of the MPCBPAA. MPCBPAA worked with MPPDC staff to contract with Balzer and Associates to handle development of required permits, final designs and project management for rehab-construction activities associated with the Pool House and Big House at Captain Sinclair's Recreational Area. In part, MPPDC staff coordinated a Veteran workday at the property which included participation of Knott Alone, Mulberry Island Veteran Team, That Damn Mary Brewing Company, Gumbeau's Catering, and Fulcrum Concepts LLC. They provided volunteer labor for demolition work in the big house for eventual veteran maritime workforce housing for MPCBPAA land holdings as well as a long-term therapy program. MPPDC staff also continues to work with VDH, Gloucester County, and Dominion Energy on various septic and right of way permits issues. Finally, MPPDC staff has received the draft bid documents prepared by legal for the big house and pool house renovations.
- **Marketing and Branding –** MPPDC staff also continued to work with Consociate Media to develop a Coastal Wilds i-frame virtual marketplace to launch an e-commerce store front: Virginia's Coastal Wilds | Official Merchandise | Bonfire. Additionally, MPPDC staff developed an e-commerce and retail agreement for entities interested in selling items through the store front.
- **Middle Peninsula Municipal Dredging Program –** Within the Middle Peninsula region there is a vast need to dredge and maintain our navigable waterways. Of 120 navigable creeks with ninety (90) needing some level of dredging, MPPDC staff sought funding to address dredging issues. The Virginia Port Authority's (VPA) newly created fund for Local Dredging Projects established funding of $5M in the first year of the general fund to VPA to distribute for local shovel-ready shallow-draft dredging projects in areas including Gloucester, Mathews, and Middlesex Counties. In part, MPPDC staff draft dredging program operating agreement to VPA staff regarding the $5M allocation from the General Assembly which is to be used for the launch of a Middle Peninsula municipal dredging program and dredging projects in the Middle Peninsula and Eastern Shore.

Product #4: Benefits Accrued from Ongoing and Prior CZM Grants

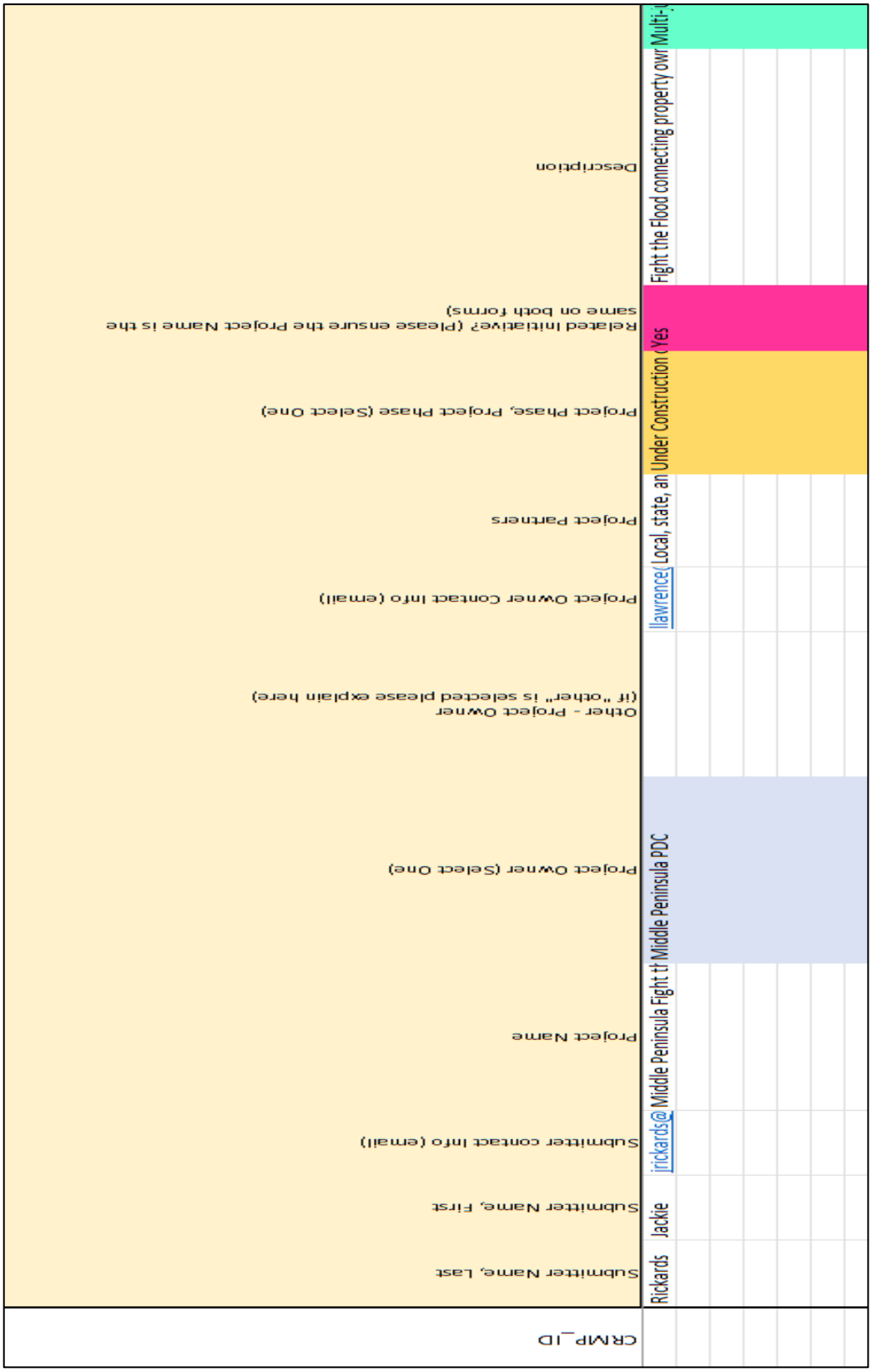
The challenges faced by residents and businesses on the Middle Peninsula, in the heart of rural coastal Virginia, are complex and diverse. Years of regulatory overlap, combined with a strong need to maintain clean waters and a resilient shoreline, created an environment that made it difficult for businesses to grow, homeowners to protect their property and the economy to thrive. With the support of Virginia CZM for the last nine years, MPPDC staff have made strategic and focused decisions to view water management in the rural coastal communities as an asset.

Appendix B provides the full report of benefits accrued and where the investment by Virginia CZM showcases results today. With continued investment, these benefits can be even further realized and built upon into the future.

Product #5: Enhancing Regional Resiliency & State Level Resiliency

MPPDC staff provided professional planning, strategic thinking, marketing, community outreach, and technical assistance to expand and promote the Fight the Flood (FTF) program within the region and beyond. FTF projects were submitted in spreadsheet format to DCR for a bulk upload to the Virginia Coastal Zone Master Plan (VCRMP)'s resilience project database. A screen capture of the spreadsheet is included below.

Figure 1. Screen Capture of MPPDC Resilience Project List Submitted to DCR

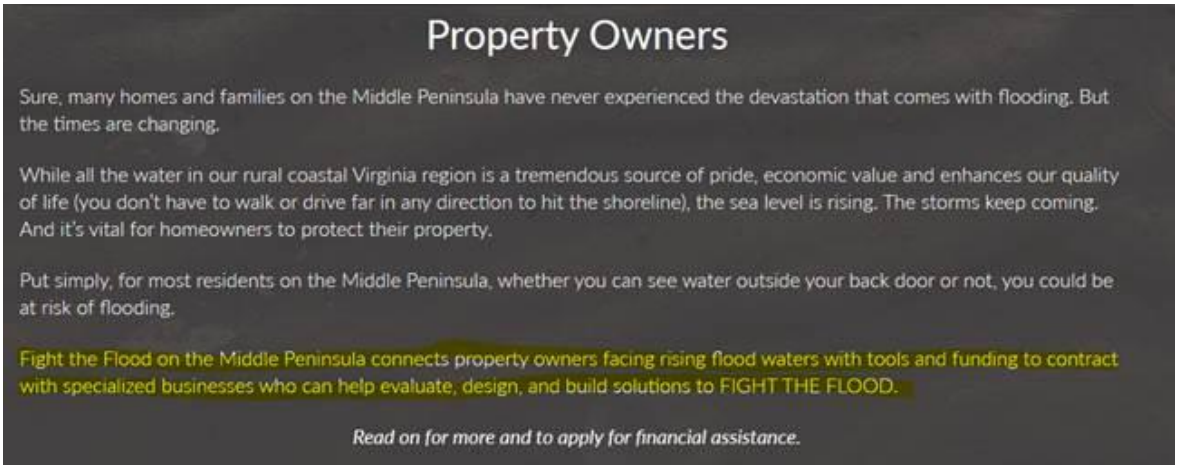


Audit of FTF Website

MPPDC staff conducted an information audit of FTF design, database, and website to ensure all information is current and relevant since the program's launch in spring 2020. Below is a list of updates needed to refine the FTF program:

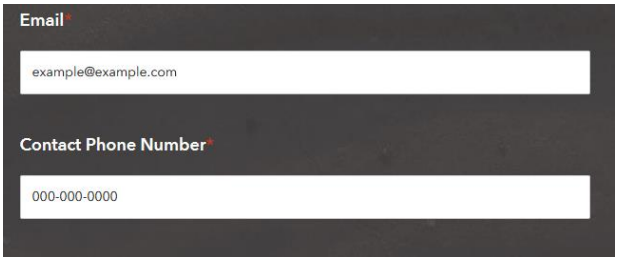
1. **Website upgrades are needed to better identify what participants get out of completing a FTF Program in-take survey –** For participants initially filling out the survey, there needs to be a better understanding of what filling out a survey means. Often participants think they will get free grant money from filling out the survey and will immediately access grants or loan funds. Instead, there should be a better explanation of the FTF survey process – What it means to complete a survey? And explain the availability of grant and loan funds? Not only will this reduce the number of questions and potential confusion around the in-take survey, but this will ultimately help management participant expectations.

   The figures below are areas on the website that will need to be updated to help clarify the purpose of the survey.



Completing the survey helps identify the issue, insurance, structural, shoreline, septic, etc. It offers paths for participants to take, wait on grants, pursue immediately with loans, or the escape plan of property donation. FTF then connects participants based on the issue they identify to private companies that offer solutions. The survey helps us match a participants need with the grant and loan opportunity when it arises.

2. **Survey refinement to capture all needed contact information –** Currently for the phone number and email questions are required cells, but the information is already filled with template text. If residents do not update these fields, then FTF staff does not have the information to contact them. The figure below shows what it currently looks like on the website.

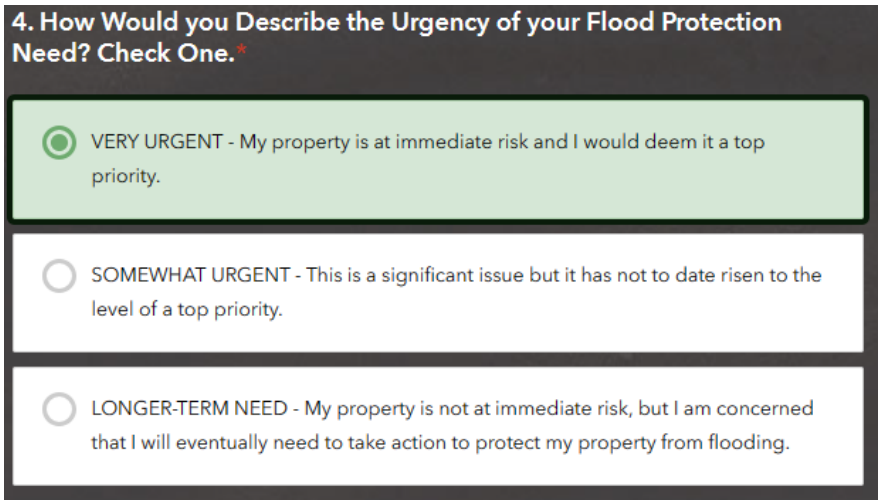


3. **Technology Clarification –** Flood mitigation solutions should be better explained. Everything is lumped together by type of need, but this does not explain the solution in detail for residents to understand how it may be implemented and the type of mitigation impacts. For example, there are various shoreline technology solutions for different energy settings. Having videos or pictures of different styles of shoreline technology will help overall understanding.

4. **Terminology Clarification –** There are several technical terms on the website that need to be explained or defined. The following is a list of terms that will need attention: Best Management Practice (BMP); repetitive loss (RL) and severe repetitive loss (SRL); home elevation; match; etc.

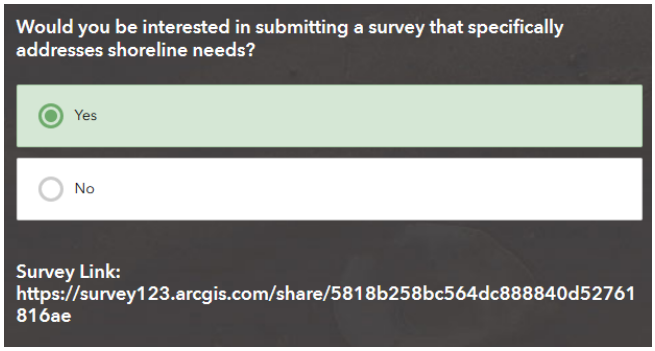
5. **Survey refinement** –
   a. The survey should be refined to reflect whether a resident is interested in loan or grant fund. Once they have identified the type of financing, they are interested in the remaining questions of the survey should reflect this. Currently, the survey asks about paying for a grant development fee even if residents indicate that you are only interested in low interest loans. The figures below show how the current survey reads.

   b. Question 4 of the survey should be refined (see question below). If a resident identifies their need as very urgent, it should indicate that grants can take time. Grants have specific requirements and there's a need to assess how the project may meet the funders needs. Additionally, if they are at immediate risk, they may inquire about low interest loans.



2. **Internal status monitoring upgrades are needed –** As the FTF program grows, there is a need to track each project, including log calls, updates, funding need, permit status, and other notes about the project. A workflow video was developed by Timmons Group to help manage the data in FTF, but the video does not seem to provide all the steps and will need updating. The importance of updating staff on the status of projects needs to be worked in on the public website side. Keeping us up to date so we can best pursue funding for the participant.

3. **Septic and Shoreline Loan survey integration needed** – The septic and living shoreline survey needs to be featured better on the website. Currently the link is broken and will need updating. The figure below shows the relevant question on the website.



4. **Structural survey questions need refinement –** The questions in the survey related to structural mitigation need clarification. For instance:
    - Define RL and SRL in this question tab. Most participants do not know what RL and SRL mean.
    - Explain specific threats or types of concern for each structure including erosion, coastal flooding, wave action damage, tidal flooding, stormwater flooding from rain events, water table.
    - Need to request elevation certificate for primary residences if available.
    - Provide the year that the home was built (for primary residences)
    - Add sidewalks, walkways to types of structures.

FTF Legal Documents

As MPPDC finances more living shorelines using a variety of federal and state funding sources, the need for a consistent legal template has emerged. Therefore, MPPDC staff contracted with Legal Counsel to develop boiler plate promissory notes required in the financing of resiliency projects. Templates were credits for Credit Ling Deed of Trust; Credit Line Deed of Trust Note; Deed of Easement; and Loan Agreement. Final legal documents can be found here: Legal Docs for Loan Closing

Community Flood Inundation Assessment and Alternatives Analysis

MPPDC staff also developed a new methodology for conducting community flood inundation assessments and strategic alternatives analysis, which recognizes that water has been coming and will continue to come and that private and government property owners must manage against this slow-motion threat or lose considerable economic and functional value of land and improvements. MPPDC staff selected the Bavon community in Mathews County as the pilot area for this methodology. Please see Appendix C for the complete assessment.

Contributions to Resilience

As MPPDC staff gathered information and worked directly with citizens and regional stakeholders to find funding opportunities that might fund their mitigation or resiliency need, MPPDC staff spent a substantial amount time writing and submitting resiliency and mitigation proposals to a variety of entities (Table 1). Throughout this grant year MPPDC staff requested a total of $**73,355,261** for coastal-related and resilience projects from a variety of entities (i.e. Federal Emergency Management Agency (FEMA), National Fish & Wildlife Foundation (NFWF), and NOAA). MPPDC staff was awarded a total of **$4,702,666** within this Virginia CZM grant period grant period.

Table 1:

Opportunities Identified to Implement Commission Priorities

Proposals Status for Grant Applications Submitted During FY2024

Service Center	Project Title and Description	Date Applied	Funding Requested	Status
Environmental	DEQ Ches. Bay WIP – Elrod Property Shoreline Construction	Sep. 2023	$225,225	Submitted
Environmental	DEQ Ches. Bay WIP – Abassi Property Shoreline Construction	Sep. 2023	$115,830	Submitted
Environmental	DEQ Ches. Bay WIP – Buckhalter Property Shoreline Construction	Sep. 2023	$351,063	Submitted
Environmental	DEQ Ches. Bay WIP – Hostenske Property Shoreline Construction	Sep. 2023	$193,050	Submitted
Environmental	DEQ Ches. Bay WIP – Breeden Property Shoreline Construction	Sep. 2023	$107,250	Submitted
Environmental	DEQ Ches. Bay WIP – Grubbs Property Shoreline Construction	Sep. 2023	$150,000	Submitted
Environmental	DEQ Ches. Bay WIP – Robens Property Shoreline Construction	Sep. 2023	$390,383	Submitted
Environmental	DEQ Ches. Bay WIP – Harvey Property Shoreline Construction	Sep. 2023	$116,654	Submitted
Environmental	DEQ Ches. Bay WIP – Parker Property Shoreline Construction	Sep. 2023	$81,023	Submitted
Environmental	DEQ Ches. Bay WIP – Hodges Property Shoreline Construction	Sep. 2023	$134,356	Submitted
Environmental	DEQ Ches. Bay WIP – Case Property Shoreline Construction	Sep. 2023	$175,318	Submitted
Environmental	DEQ Ches. Bay WIP – New Point Comfort Natural Area Preserve Shoreline Construction	Sep. 2023	$637,000	Submitted
Environmental	DEQ Ches. Bay WIP – Captain Sinclair's Recreational Area West Shoreline Construction	Sep. 2023	$880,000	Submitted
Environmental	DEQ Ches. Bay WIP – Hog Island Phase 3 Shoreline Construction	Sep. 2023	$330,000	Submitted

MPCBPAA	Virginia Tourism Corporation (VTC) Marketing Leveraging – Pier Pressure Campaign	Sep. 2023	$17,450	Submitted
Environmental	NOAA Climate Resilience Challenge – VIMS Resilience Projects (including Gloucester Point Beach, PAA Sites) Letter of Intent (LOI)	Sep. 2023	$15,881,200	Submitted
Environmental	DEQ Ches. Bay WIP Technical Assistance 2024	Sep. 2023	$72,500	Submitted
Environmental	NOAA Climate Resilience Challenge Letter of Intent – VASG Resilience Industry Development	Aug. 2023	$25,000,000	Not Awarded
Environmental	NOAA Climate Resilience Challenge Letter of Intent – VIMS Resilience Projects (including Gloucester Point Beach, MPCBPAA Sites)	Aug. 2023	$15,881,200	Submitted
Environmental	NOAA BIL Habitat Restoration Planning: VMRC Extreme Creek Makeover LOI	Jul. 2023	$650,000	Not Awarded
Environmental	NOAA BIL Habitat Restoration: New Point Comfort NAP Shoreline, Hog Island Shoreline, & Captain Sinclair's Recreational Area Shoreline LOI	Jul. 2023	$4,350,000	Submitted
Community Development	Boating Infrastructure Grant – Urbanna Marina Floating Docks	Jul. 2023	$159,550	Submitted
MPCBPAA	Captain Sinclair's Recreational Area Stormwater BMPs	Jul. 2023	$10,000	Not Awarded
Haz. Mitigation	FEMA HMGP – All Hazards Mitigation Plan Update	Jun. 2023	$148,143	Submitted
Community Development	Virginia CZM New Point Comfort NAP Boardwalk Replacement	Jun. 2023	$183,952	Submitted
Environmental	NFWF Small Watershed Grant: Ware River Shoreline Construction (Phase 2)	Apr. 2023	$349,835	Submitted
Environmental	NOAA/Virginia CZM Coastal Technical Assistance FY23	Mar. 2023	$129,000	Awarded
Community Development	Virginia CZM Working Waterfronts Resilience Assessments	Feb. 2023	$54,505	Awarded
MPCBPAA	Captain Sinclair's Recreational Area Americans with Disabilities Act (ADA) Accessibility Plan	Jan. 2023	$50,000	Not Awarded
MPCBPAA	VA Water Trails Experiential Upgrades for Website	Jan. 2023	$50,000	Not Awarded
Environmental	VDH American Rescue Plan Act (ARPA) Septic & Well Assistance Program (SWAP) Septic Repair	Dec. 2022	$730,295	Awarded
Environmental	CFPF Round 3 Supplemental - Gloucester Point Landing	Nov. 2022	$1,276,332	Not Awarded
Environmental	CFPF Round 3 Supplemental - Middlesex Whiting Creek Public Boat Ramp Resilience	Nov. 2022	$107,692	Awarded
Environmental	CFPF Round 3 Supplemental - Mathews Whites Creek Landing	Nov. 2022	$160,669	Awarded
Environmental	CFPF Round 3 Supplemental - Mathews East R. Boat Yard	Nov. 2022	$618,812	Awarded
Environmental	CFPF Round 3 Supplemental - Mathews Davis Creek Dredging	Nov. 2022	$1,461,615	Awarded
Environmental	CFPF Round 3 Supplemental - MPCBPAA Sinclair's Road Elevation and Berm Construction	Nov. 2022	$146,000	Awarded
Environmental	CFPF Round 3 Supplemental - York R. Private Shoreline Construction (2-projects)	Nov. 2022	$192,880	Awarded
Environmental	CFPF Round 3 Supplemental - Piankatank River Private Shoreline Construction (1 project)	Nov. 2022	$76,625	Awarded
Environmental	CFPF Round 3 Supplemental - Chesapeake Bayfront Private Shoreline Construction (1 project)	Nov. 2022	$65,281	Not Awarded

Environmental	CFPF Round 3 Supplemental - Mobjack Bay Private Shoreline Construction (4 projects)	Nov. 2022	$519,843	Awarded
Environmental	NSF MARTHA VASG Resilience Monitoring	Nov. 2022	$120,000	Not Awarded
Environmental	NOAA/Virginia CZM Hog Island 306A Shoreline Protection Construction	Nov. 2022	$432,230	Awarded
Environmental	DEQ Chesapeake Bay WIP Technical Assistance 2023	Oct. 2022	$ 72,500	Awarded
Environmental	NOAA Underserved Communities – Fight the Flood Staffing & Capacity	Oct. 2022	$500,000	Not Awarded
	Total Requested		**$73,355,261**	
	Awarded Total (October 2022– September 2023)		**$4,702,666**	
	Request Award Potential Total		**$40,930,982**	

MPPDC staff also utilized standing meetings of the Local Planners, the Local Government Administrators, and the Commission to continue dialog and discussion about regional resiliency and mitigation and associated topics. In part, MPPDC staff participated in State resiliency planning, including offering feedback to the VCRMP, attended the Joint Subcommittee on Rural Flooding and Adaptation (October 2022), and attended the Joint Subcommittee on Recurrent Flooding (1/9/23). Finally, MPPDC staff presented at the Crater PDC RAFT Resilience Action Workshop (2/16/23). The presentation focused on how the Middle Peninsula FTF Program addresses coastal resiliency and actions resulting from the Middle Peninsula Resilience Adaptation Feasibility Tool (RAFT).

Lately, MPPDC staff made progress on the pilot septic program, funded through the General Assembly and a GO Virginia grant. MPPDC staff continued to work with Triangle Environmental (TE) to design and structural modify the elevated septic systems for commercial application at the King and Queen facility. MPPDC staff also provided TE with an elevation certificate for estimating the height of the treatment unit to ensure the unit is above base flood elevation or alternatively, the septic unit is installed inside the house. Finally, one of two systems has been delivered to the Middle Peninsula and is scheduled for elevation any day. The first one will be installed at Captain Sinclair's Recreational area. **Figure 2** shows photos of the prototype.

Figure 2. *Photos of the elevated septic system.*

MPPDC staff continues to make headway in the community resilience and mitigation space and remains a leader on the topic.

Appendix A: MPPDC Staff Activities

October 2022

- Coordinated with Virginia Department of Energy (Virginia Energy) staff regarding prospective partnerships regarding research and development opportunities for the reuse of dredged material.
- Provided updates to the Middle Peninsula citizens and localities who made applications to the DCR Community Flood Preparedness Fund (CFPF) requesting financial assistance to combat flooding. DCR has issued a supplemental round of funding for Round 3 and PDC staff will be preparing information to submit to DCR for all applications with award notices anticipated by December.
- Coordinated with member jurisdictions regarding the VA Department of Forestry (DOF)'s Forest Sustainability Fund for Local Governments. Shared program information and assisted with the development of applications for eligible localities.
- Reviewed and provided comments to the York River and Small Coastal Basins Roundtable (YRSCBR) regarding a draft of the YRSCBR Wetlands Plan.
- Drafted and submitted a full application to the FEMA Flood Mitigation Assistance (FMA) program to elevate a home in Gloucester County, Virginia.
- Drafted and submitted a full application to the FEMA BRIC program to conduct a repetitive loss area analysis to improve grant application preparation for properties at the highest risk of flooding.
- Developed and submitted a RAFT mini-Grant proposal for a Septic Pumpout Program for low-to-moderate income homeowners. Received $25,000 of funding for Septic Pumpout Program for low-to-moderate income homeowners.
- Submitted draft dredging program operating agreement to VPA staff regarding the $5M allocation from the General Assembly which is to be used for the launch of a Middle Peninsula municipal dredging program and dredging projects in the Middle Peninsula and Eastern Shore.
- Drafted and submitted the semi-annual report to Virginia CZM.
- Researched potential DCR and FEMA dam funding opportunities for FTF participants.
- Contacted Mrs. Nancy Ingram about the private, community-owned dam on Lakeview Drive. Received the 16 deeds to the properties immediately bordering the dam, as well as a Declaration stating that the maintenance and upkeep of the dam is the responsibility of all adjoining lot owners. Contacted DCR's Brenton Payne, about potential funding opportunities and the possibility of setting up a revolving loan fund program for non-state regulated dams.
- Wrote a letter of support for Lynnhaven River NOW (LRN)'s $2.9M proposal to remove abandoned and derelict vessels (ADVs) to Nancy Wallace, Director of the Marine Debris Program in the NOAA Office of Response and Restoration.
- Created a Masterlist of all FTF applicants in Excel. Masterlist highlighted applicants looking for FEMA flood insurance, as well as each applicant's DCR CFPF submittal round and status.
- Created Excel spreadsheet for all Round 3 DCR CFPF submitted projects and DCR's response

letters. Each bundle's requested supplemental information was included, as well as MPPDC formulated responses.

- Created a hard copy database of all DCR CFPF round three submitted projects and DCR response letters. Each project was inspected for potential inconsistencies and discrepancies. Public and private projects were categorized by both county and body of water.

- Met with Town of Urbanna staff to discuss boating, resilience, and water access needs. Input two potential projects into FTF for the Town of Urbanna. The Town of Urbanna would like to replace the bridge on Oyster Roadd and create a kayak launch. The town would also like to utilize the area at the end of Virginia Street, creating a natural breakwater and a floating dingy dock.

- Consulted with David Norris, Virginia Department of Wildlife Resources (DWR) regarding the timing of and organizing for 306A funding for Hog Island in Gloucester. Agreed to utilize funds which expire in August of 2023 to assist DWR with their planning for use of Section 306A funding.

- Consulted with a Gloucester County resident living on Perrin Road unable to advance forward a FEMA grant funded to elevate his home due to lack of capacity in Gloucester County. Advised citizen that Gloucester County has expanded capacity and should be contacted soon regarding project status.

- Provided a written response to DCR Staff overseeing the CFPF Round 3 Supplemental Review that all Middle Peninsula applications desire to be reviewed and considered for funding.

- Consulted with Virginia CZM's Jeff Flood regarding current sunk vessel state code enabling authority and relations to proposed draft ordinance under development. Discussed why and how a new ordnance will or won't create the outcome desired by Virginia CZM, even with funding being provided to remove sunk vessels.

- Consulted with Delegate Keith Hodges regarding various opportunities to monetize blue green assets within rural coastal Virginia. Received several calls from various citizens also interested in monetizing natural resources. Advised all that until the Commonwealth decides that leveraging the assets of rural coastal can help to meet its clean water commitments, it's unlikely that such opportunities will advance.

- Consulted with Dan Knott, President of Knott Alone regarding the use of Veteran labor for advancing projects in MPCBPAA lands.

- Consulted with a Gloucester County citizen looking to elevate her home as part of an ongoing MPPDC reach based resiliency project on the Ware River. Agreed to prepare and submit an application to FEMA requesting funds to elevate the house.

- Consulted with Essex County Board of Supervisors member regarding housing and renting assistance programs.

- Attended 2022 Governor's Summit on Rural Prosperity. Speaker presentation focused on maintaining balance between agriculture and natural resources conservation (water quality & land conservation) as it overlaps with the local economy (private industry, tourism and aquaculture; rural housing needs; increasing workforce to address problems and bring new solutions.

- Convened the October meeting of the Local Government Administrators. Agenda items included discussion on establishing a municipal dredging program, Virginia Energy Plan, and updates on DCR Round 3 funding.
- Submitted a two-paragraph summary for Accrued Benefits report and drafted FY21 Accrued Benefits report.
- Completed final draft of grant compilation press release for region, showcasing impact of MPPDC over last 18 months.
- Participated in the September 6 meeting of the Joint Subcommittee on Rural Flooding and Adaptation in Norfolk where resilience matters pertaining to septic systems, DCR grant funding, and the VCRMP were discussed. Shared outcomes with the PDC Board, Local Government Administrators, and Local Government Planners.
- Submitted Section 309 Project of Special Merit (PSM) idea to Virginia CZM staff for the development of a guidance document for the beneficial reuse of dredged material.
- Coordinated with Virginia Marine Resources Commission (VMRC) staff regarding a proposal for NFWF Innovative Nutrient and Sediment Reduction implementation grant for the construction of living shorelines in the Middle Peninsula.
- Participated in the Virginia CZM's Shoreline Stakeholder Group's Jurisdictions Work Group meeting on October 26 to discuss current shoreline policies and emerging shoreline issues.

November 2022

- Consulted with an Essex County Board of Supervisors member regarding availability of rental properties within the Town of Tappahannock and Essex County.
- Consulted with an Essex County developer interested in bringing mixed use retail/commercial and workforce housing to Essex and Tappahannock.
- Consulted with a Gloucester County resident regarding public hunting opportunities on lands owned by the MPCBPAA.
- Provided MPCBPAA website access to various users interested in reserving MPCBPAA land for hunting opportunities.
- Consulted with engineered septic secondary treatment company new to the Middle Peninsula regarding deployment of new septic systems and availability of contractors for installation.
- Consulted with the family for a parcel of land donated to the MPCBPAAy regarding previous tax payment checks owed to Gloucester County which was overlooked or lost in the mail. The family is resending payment.
- Receive notification from a local marine contractor that Tidewater Soil & Water Conservation District (SWCD) is considering entering into an MOU with the Friends of the Rappahannock (FOR) to administer the Virginia Conservation Assistance Program (VCAP) for living shorelines.
- Consulted with DOF's Nelson Jarvis regarding Department of Forestry installing a walking trail between the Brown State Forest and the Brown Tract owned by the MPCBPAA.

- Completed a report summarizing the accrued benefits of NOAA/Virginia CZM funding for FY22.
- Coordinate with the Mattaponi and Pamunkey Rivers Association regarding flooding projects and needs within the watersheds.
- Participated in a meeting called by Three Rivers Health District Director, Dr. Rich Williams to meet and consult with the new VDH Commissioner, Dr. Colin Green on various health related initiatives across the Middle Peninsula and the work of MPPDC and Three Rivers Health District.
- Met with Virginia Department of Transportation (VDOT)'s Office of Sustainability engineers regarding a partnership to have VDOT engineers test the suitability of concrete products made from local dredged material for the use on roads or structures to prevent erosion adjacent to roads. Shared sediment characteristic information for twenty-two (22) creeks in the Middle Peninsula for potential testing. Awaiting response from VDOT to see if project is selected.
- Consulted with Virginia Energy staff regarding dredged material reuse opportunities. Virginia Energy is considering assisting with providing existing information regarding available subaqueous sand deposits which could have high reuse value and/or conducting research regarding valuable minerals, nutrients, or other materials in local dredged sediments.
- Completed the Section 306A Checklist for the Hog Island Restoration project. In part, MPPDC staff reached out to the Department of Historical Resources (DHR) to begin a National Historical Review of the project location.
- Presented the Climate Central Sinking Tax Base information to local planners and encouraged planners to review their outcomes in further detail.
- Coordinated with VMRC and NFWF staff regarding a proposal for NFWF Innovative Nutrient and Sediment Reduction implementation grant for the construction of living shorelines in the Middle Peninsula.
- Created an excel spreadsheet with all DCR CFPF Round 3 submitted projects grouped by body of water.
- Participated in the November 15 VA Council on Environmental Justice meeting.
- Met with Flood Map regarding the development of a flood warning program and app that could be incorporated into the Middle Peninsula FTF program and notify citizens of road flooding prior to occurrence. Developing scope and budget that can be utilized for future grant proposals.
- Met with Green Stream flood monitoring company regarding participation in the FTF program and prospective projects for developing regional flood monitoring.
- Met with DCR in Richmond to discuss the Supplemental Round 3 applications. DCR directed MPPDC staff to submit only fourteen (14) of the previously submitted forty (40) applications. MPPDC staff will edit and re-bundle the fourteen (14) applications to the DCR standards and submit by the end of November.
- Conducted site visits to MPCBPAA properties including Clay Tract, to photograph property and inspect site conditions. Uploaded pictures to PDC database.
- Researched MPCBPAA properties with hunting opportunities available. Some properties have

private blinds immediately off the shoreline posing potential problems for hunters on MPCBPAA property. Reviewed waterfowl blind licenses and laws for a license that would establish all of the MPCBPAA lands' waterfront as a permanent waterfowl blind.

- Developed a scope of work for a NOAA Section 309 PSM proposal for discussions with state permitting agencies related to the beneficial reuse of dredged material. Partners include VMRC and VIMS.
- Consulted with VIMS's Center for Coastal Resources Management (CCRM) staff regarding the development of an ecosystem services calculator for the Middle Peninsula.
- Coordinated with Delegate Keith Hodges regarding coastal legislation for the upcoming 2023 General Assembly.
- Participated in the Virginia CZM's Shoreline Stakeholders Group's Funding Work Group meeting on November 21 to discuss current shoreline policies and emerging shoreline issues.
- Participated in the Southeast Regional Crescent Regional Commission Input Session held on November 29 and provided input regarding funding needs for water quality projects pertaining to residential septic and living shoreline BMPs.

December 2022 & January 2023

- Executed subaward with Coastal Consociate for development of VA Coastal Wilds i-frame virtual marketplace.
- Coordinated a meeting scheduled for January with FEMA and Virginia Department of Emergency Management (VDEM) regarding local government Floodplain Management Program responsibilities. One item to be discussed is local review and approval requirements of VDOT projects within floodplains.
- Entered a new applicant from Gloucester County into the FTF Program.
- Consulted with YRSCBR staff regarding items for consideration should legislative action be pursued by any roundtable partners regarding enabling legislation for the creation of a formal Commission for the watersheds.
- Finalized a scope of work and provided a letter of support for a NOAA Section 309 PSM proposal for development of guidance with state permitting agencies related to the beneficial reuse of dredged material. Partners include VMRC and VIMS.
- Researched EPA Environmental Justice Government to Government grant program and explored various proposal ideas which would provide assistance to Middle Peninsula citizens.
- Consulted with a NOAA Coastal Fellow researching public water access challenges.
- Participated in the Rappahannock River Basin Commission (RRBC) meeting on December 7.
- Consulted with VDEM staff regarding development of coastal flooding technology and monitoring stations.
- Compiled and shared Regional Greenhouse Gas Initiative Auction 58 outcomes.
- Participated in the APA Virginia webinar "New CBPA Regulation, Guidance, and Rollout and

VMRC Tidal Wetlands Guidance" on December 6.

- Participated in the VCRMP Technical Advisory Committee (TAC) meeting on December 1 in Richmond.
- Updated MPCBPAA properties hunting zones and polygons available to the public. Opened new hunting zones up and expanded new areas to give public new land to explore.
- Met with DWR to discuss waterfowl blinds and getting a waterfowl blind license for all waterfront MPCBPAA lands.
- Staff met to discuss a new methodology for conducting community flood inundation assessments and strategic alternative analyses. New Point Comfort, Virginia was chosen as the pilot area. Staff will gather GIS parcel data, current flood conditions, and SLR scenarios to get a better idea of what the current conditions are at the pilot area.
- Drafted and submitted a DEQ ARPA funds application for the fleet purchase of septic TL-3 systems.
- Created a table showing all living shoreline funds currently available to the public.
- Participated in the Joint Subcommittee on Recurrent Flooding meeting on January 9 where coastal resilience legislation, water management economy development, and coastal resilience project development were discussed.
- RAFT Regional Resilience Equity Workgroup meeting dates were emailed out for the initial meeting. MPPDC staff notified RAFT staff they would not be able to attend the initial meeting on Jan. 25, 2023, due to a FEMA meeting on the same day, but would be able to make it on Jan. 19, 2023. RAFT staff will hold initial meeting on Jan. 25, 2023.
- Met with FTF business, Natrx, to discuss reuse of dredged material via manufacturing of concrete for resilience and other purposes.
- Consulted with a Middlesex County resident regarding shoreline erosion problems on the Piankatank River.
- Responded to a request for proposals issued by DEQ for septic system repair. Proposed a fleet purchase model similar to purchasing multiple vehicles to reduce the cost of septic systems which citizens are now experiencing due to the pandemic and supply chain problems.
- Consulted with John Edwards, Town of West Point Town Manager regarding a GO Virginia grant to assess the viability of property next to the Middle Peninsula Regional Airport owned by the Town for commercial and industrial development.
- Convened the monthly meeting of the Local Government Administrators. Agenda items included General Assembly updates, local budget discussions, Opioid settlement, DCR CFPF update and Blue Catfish bill.
- HB 1664 passed to establish the Governor's Blue Catfish Industries Development Planning Grant Program and the Blue Catfish Flash Freeze Grant Program to encourage efforts by political subdivisions to support the blue catfish industry and the flash freezing of such catfish. Grants and loans will be awarded to such subdivisions to support efforts to attract value-added facilities using blue catfish. Under the program, localities may apply for grants or loans after having established a relationship with a new or expanding business that is expanding blue catfish

processing, flash freezing, or value-added facilities using blue catfish.

- Consulted with Premier Tech regarding approaches for removing nitrogen for agricultural products at the request of Delegate Keith Hodges. Premier Tech utilizes special micro-mushrooms on soybeans which uptake nitrogen.
- Provided assistance to Middlesex County staff regarding aquaculture use conflict and VMRC's approach for management.
- Consulted with a Middlesex County business owner interested in providing dredging services for upcoming Middle Peninsula dredge projects. Advised the business owner his name will be placed on any RFP list issued.
- Presented to Middlesex County Board of Supervisors regarding current dredging activities in the County and anticipated launch of a regional municipal dredging program.
- Updated the FTF investments total to reflect new funding sources leveraged via the program during the first half of FY23. Total investments now total $24.5 million since FY20.
- Participated in a meeting called by Delegate Keith Hodges to discuss a strategy for funding and eradicating blue catfish and invasive species in most of the rivers of the Chesapeake Bay. This request has resulted in legislation and a budget amendment to fund the program to be administered by the decks.
- Consulted with VDOT Saluda Resident Engineer Lee McKnight regarding surveying various road endings to determine where VDOT boundary lines are supposed to be. Several Middle Peninsula roads will be surveyed by VDOT.
- Convened the monthly meeting of the MPCBPAA. Agenda items included approval of the annual audit, Captain Sinclair's Recreational Area update on housing, fishing pier, and E-commerce platform; DCR CFPF awards; Hog Island restoration grant awards to the MPCBPAA; dredging related issues.
- Consulted with Andy Crocker of the Southeast Rural Community Assistance Project, Inc. (SERCAP) regarding a request for funding by Essex County to develop a plan for possible sewer expansion into the county. MPPDC will assist with the development of the application due to SERCAP before July 2023.
- Consulted with Wetlands Watch staff regarding possible uses of FEMA acquired properties for other uses to support resiliency and public access.
- Attended the YRSCBR Lunch & Learn on January 25, 2023. There were two presentations provided: (1) Abril Hunter, FSU, facilitating access through signage in the York River watershed and its adjacent basins and (2) Seann Reagan and Heidi Burkart, NOAA, Using Anonymous Cell Phone Data to Characterize Visitor Use Patterns in the Middle Peninsula, Virginia.

February 2023

- Convened the February meeting of the Local Government Administrators. Agenda items included General Assembly updates, FEMA made man impacts and annual updates to the FEMA All Hazards Mitigation Plan.

- Consulted with Robert Crockett, Advantus Strategies, regarding Delegate Keith Hodges' House Bill 1664 - Blue Catfish Processing, Flash Freezing, and Infrastructure Grant Program. This bill creates a new economic development program which rural coastal local governments can apply for funding to implement. The bill has cleared the House and Senate.

  > **Governor's Blue Catfish Processing, Flash Freezing, and Infrastructure Grant Program.** Establishes the Governor's' Blue Catfish Processing, Flash Freezing, and Infrastructure Grant Program and authorizes the Governor to award grants to political subdivisions from the Governor's Agriculture and Forestry Industries Development Fund as part of the Program. Such grants, in amounts up to $250,000, shall be awarded as reimbursable grants to support blue catfish processing, flash freezing, and infrastructure projects. The bill directs the Secretary of Agriculture and Forestry to develop certain guidelines as provided in the bill on behalf of the Governor to facilitate the Program.

- Testified at the General Assembly in support of House Bill 1804 - Tidal wetland mitigation banks. This bill will modify the trading boundaries making it easier for those generating credits in rural coastal areas to sell credits.

  > **Tidal wetland mitigation bank credits:** Authorizes certain entities to purchase or use credits from a tidal wetland mitigation bank located in an adjacent river watershed when such bank contains substantially the same plant community type and salinity regime as the impacted wetlands, which shall be the preferred form of compensation. The provisions of the bill apply only to tidal wetland mitigation banks in certain subbasins when a tidal wetland mitigation bank with substantially the same plant community type and salinity regime as the impacted wetlands is not available in the same river watershed as the impacted wetland.

- Convened the bi-monthly meeting of the MPCBPAA. Agenda items included approval of the annual audit, Virginia Housing Development Authority (VHDA) housing grant for next generation housing, public fishing pier at Sinclair's, and E-commerce platform; DCR CFPF award to build a flood berm by testing DEQ's new regulatory approach for resiliency; Hog Island restoration grant awards to the MPCBPAA; and general dredging related issues.

- Maintained FTF website with monthly backups and security scans.

- Developed graphic icons to support survey needs for FTF.

- Added additional business listings to the FTF public facing database.

- Developed graphic design elements for the FTF storyboard.

- Drafted and distributed press release on Middle Peninsula dredging projects.

- Drafted and distributed press release on Blue Catfish fund.

- Coordinated photography at Betty Case shoreline project site.

- Consulted with Mary Carson-Stiff, Deputy Director for Wetlands Watch, concerning FEMA acquired properties and innovative uses for public acquired lands with no active use planned.

- Consulted with a Mathews County resident with public waterfowl hunting questions associated with lands owned and managed by the MPCBPAA.

- MPPDC staff coordinated a joint meeting between MPPDC and Hampton Roads PDC with FEMA and DCR staff to discuss Floodplain Management Technical Assistance on January 25. Josh Lippert, FEMA advised of a policy process named "RAD" which allows for non-impact improvements to occur without the need for a permit to be issues. MPPDC is working with FEMA on the process necessary for local governments to propose a RAD solution.

- Developed an application to the VPA Aid to Local Ports Program for improvements to the East River Boat Yard property owned by Mathews County and gave a presentation to VPA on February 7 in Norfolk as part of the application process.

- Developed an application to the VPA Waterway Maintenance Fund for dredging of Davis Creek in Mathews County and gave a presentation to VPA on February 7 in Norfolk as part of the application process.

- Developed an application to the VPA Authority Waterway Maintenance Fund for development and implementation of a regional dredged material disposal master plan and gave a presentation to VPA on February 7 in Norfolk as part of the application process.

- Research and data were gathered from NOAA's Sea Level Rise viewer, VIMS AdoptVA viewer, and MPPDC's Mathews Comparative Analysis for Coastal TA deliverable 5.

- Met with Timmons Group to help create a new GIS dashboard used to discern the status of each FTF participant's project.

- Sent Mike Vernon, Flood Insurance Hampton Roads, all the FTF participants that asked for help with FEMA flood insurance. Asked Mike to provide an update on the participants he has already contacted and their current status.

- Contacted Gerry Mann at Portadam to discuss the FTF program and the benefits of joining the FTF program.

- Filtered and updated all the businesses in Survey123 with those on the FTF website. Initiated talks with Consociate media about the potential update of categories on the directory page of the FTF website, making it easier to navigate the businesses.

- Staff formed a FTF business binder and created a new FTF business vetting process. Green Stream Technologies and Native Shorelines were vetted and approved for the FTF program. Both businesses were sent to Consociate Media and are now in the FTF directory.

- Staff are continuing to research and collect dredge documents.

- Contacted Garth Wheeler, Urbanna Town Administrator, about their interest in BIG funding for the town marina. The town expressed interest in having MPPDC apply for the next round of BIG funding on behalf of the town for the replacement of the northern end of the marina with floating docks.

- Staff are working on the Virginia Outdoors Foundation (VOF) Get Outdoors Fund pre-application for the building of unimproved trails at Captain Sinclair's Recreational Area.

- Met with new FTF business registrant, Native Shorelines, who offers pre-fabricated shoreline solutions for low to moderate energy shoreline settings to discuss the FTF program and learn

more about the company's offerings.

- Drafted and submitted two proposals to the National Park Service (NPS)'s Chesapeake Gateways Network Grant program. Proposal 1 focused on developing an ADA Public Access Master Plan for Captain Sinclair's Recreational Area to expand accessibility for folks with disabilities. Proposal 2 focused on developing 4 virtual tours of the Middle Peninsula water trails that showcase the Chesapeake Bay experiences.

- Participated in the February 6 Virginia CZM Shoreline Stakeholders Group meeting where outstanding and emerging issues regarding shoreline management were explored by a large group of local and state staff.

- Participated in the VA Coastal Policy Team (CPT) meeting on February 15 where various coastal policy and grant funding opportunities were reviewed and discussed.

- Presented at the Crater PDC RAFT Resilience Action Workshop on February 16 and provided information on the FTF program and actions resulting from the Middle Peninsula RAFT.

- Participated in the quarterly Coastal PDC meeting in the Northern Neck on February 21 where NOAA programmatic updates and changes, coastal policy, and NOAA/Virginia CZM funded projects were discussed.

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March 2023

- Drafted and distributed press release regarding public fundraiser for needed funds for the MPCBPAA Captain Sinclair's Recreational Area public fishing pier construction.
- Participated and hosted training for local government staff for VA Stormwater Management Program opt-out localities on February 28. Coordinated follow-up meeting with DEQ staff tentatively slated for May for Middle Peninsula localities only.

- Consult with Mike Vernon, President of Flood Mitigation Hampton Roads regarding working with registered Fight the Flood citizens looking for BMP solutions across the Middle Peninsula.

- Consulted with a King and Queen County Boy Scout regarding Eagle Scout assistance project to be conducted on the Brown Track located in Essex County. The Eagle Scout is considering a repair to the walkway over the Dragon Run and cleaning of the parking area.

- Participated in a resiliency panel discussion regarding an upcoming presentation at Environment Virginia Conference, the Commonwealths premiere conference on environmental matters. MPPDC staff will present on the complex financial system required to administer and fund a resiliency program.

- Consulted with Delegate Keith Hodges regarding the closing of the Virginia Coastal Policy Center (VCPC) and the implications for coastal Virginia. Discussed strategies and the need for keeping the center active to provide legal advice for coastal resiliency projects.

- Participated in DCR's Resiliency Coordination Working Group. This group was established to help advise the Commonwealth on matters of government coordination.

- Consulted with a King and Queen County resident residing on Royal Oaks Road regarding

accessing properties owned by the MPCBPAA for outdoor recreation.

- Continued coordination with Mark Mansfield, President of Shore Consulting regarding required Unites States Army Corps of Engineers (USACE) permit and VMRC Joint Permit Application (JPA) to dredge Mill Creek boat ramp. Provided Middlesex County with several choices for submitting the JPA to save the county costs.

- Convened the monthly meeting of the local government administrators. Dominion Energy presented on data centers, an opportunity for economic development within rural coastal Virginia. Data centers need to be located in close proximity to transmission towers, and fiber lines.

- Initiated research regarding septic issues at the old Crown Point marina located on Perrin River. Discuss the need for a coordinated meeting with Three Rivers Health District, Delegate Keith Hodges, and VDH Central office representatives.

- Consulted with legal counsel, representing the new owners for the old Yogi Bear campground in Gloucester County, regarding various septic challenges associated with the campground and funding available to assist.

- Convened the bi-monthly meeting of the MPCBPAA. Discussed the status of the new public fishing pier and cost associated with ADA costs and engineering upgrade costs as well as housing improvements at Captain Sinclair's Recreational Area.

- Drafted a support letter for Elizabeth Andrews' nomination for the 2023 Gerald P. McCarthy Award.

- Drafted and submitted the FY23 MPPDC TA scope of work to Virginia CZM.

- Attended a webinar hosted by NFWF about their National Coastal Resilience Fund. This fund focuses on increasing and strengthening natural infrastructure to protect coastal communities while also enhancing habitats for fish and wildlife.

- Coordinated with Virginia Energy regarding development of a proposal for NOAA/Virginia CZM funding to study available upland and subaqueous aggregate deposits in the region.

- Coordinated with VMRC regarding development of a proposal for NOAA/Virginia CZM funding to develop guidance for beneficial reuse of dredged material.

- Consulted with Consociate Media for the uploading of new FTF business participants for the FTF website.

- Updated and maintained FTF projects in database. Input new FTF participants in our system.

- Reviewed all DCR CFPF reward letters and compared them with original proposals. Identified discrepancies and determined appropriate budgets for individual projects.

- Consulted with an individual about shoreline stabilization and how the FTF program can assist his current situation. The individual also had interest in conservation easements.

- Fielded a call for an elderly lady who is experiencing a failed bulkhead. She expressed interest in oyster sills. Provided her information on Natrx, ReadyReef, and Native shorelines as alternatives

to replacing the bulkhead. Her information was inputted into the FTF system.

- Staff applied and submitted a grant application to VOF Get Outdoors Funding for $25,000 for the building of unimproved trails at Captain Sinclair's Recreational Area.
- Attended 2023 Chesapeake Bay Small Watershed Grants and Chesapeake WILD Grants applicant webinar.
- Distributed press release highlighting grant funds awarded to region in last two years.
- Photographed shoreline construction projects.
- Updated business listings for FTF.
- Provided graphic design support to dashboard development for FTF.

April 2023

- Scheduled additional training between DEQ and local government staff for VA Stormwater Management Program opt-out localities to build upon initial discussions held during February. Training to be held during the May MPPDC local government planners meeting.
- Coordinate Coastal PDC meeting for May/June where MPPDC staff will host.
- Coordinated with Virginia CZM, Mathews County, and Mathews Rotary Club regarding a proposal for NOAA/Virginia CZM funds to rehabilitate the New Point Comfort public observation deck in Mathews County. Proposal to be submitted during April.
- Reviewed and submitted comments regarding the YRSCBR Draft Wetlands Plan.
- Reviewed and saved the Virginia CZM Data Sharing Plan form.
- Docks of the Bay Marine Construction contacted MPPDC with interest in becoming a part of the FTF Program. Staff sent survey information and Docks of the Bay is now an approved FTF business partner.
- Staff provided FTF business survey information to dredging company Harbor Dredge and Dock.
- Staff consulted with a Mathews resident interested in dredging a shoaled creek. He was directed to input as much detailed information into MPPDC Fight the Flood program.
- Consulted with FTF Partner business, Resource Environmental Solutions (RES), about updating profile information on the FTF website.
- Consulted with new FTF participant in Gloucester about their eroding shoreline.
- Worked with homeowner to develop a letter of support for NFWF Small Watersheds Grant (SWG) Ware River Phase II project.
- Staff organized a site visit to Captain Sinclair's Recreational Area for FTF business partner Native Shorelines. Staff showed Native Shorelines its new 100-acre addition to Captain Sinclair's Recreational Area and the potential for pilot projects along its shorelines.
- Provided a list of FTF participants with shoreline issues to FTF businesses.

- Consulted with Consociate Media with new updates to the FTF program website.
- Attended the RAFT Regional Resilience Equity Workgroup zoom meeting on April 12.
- Provided Mike Vernon with an updated list of FTF participants interested in speaking to someone about FEMA Flood Insurance – April 11.
- Attended a meeting hosted by PlanRVA to discuss King & Queen and King William's participation in the Climate Pollution Reduction Grant (CPRG) opportunity. Through the CPRG program, EPA will support state, territory, tribal, and local actions to reduce greenhouse gases and associated criteria and toxic air pollution through deployment of new technologies, operational efficiencies, and solutions that will transition America equitably to a low-carbon economy that benefits all Americans.
- Staff drafted and submitted the semi-annual report to Virginia CZM.
- Staff drafted and submitted a proposal to NFWF's National Coastal Resiliency Fund to add staffing capacity to the FTF Program.
- Staff drafted and submitted three proposals to the EPA's Chesapeake Bay Program Office funding opportunity to construct phase II of the living shoreline project on the Ware River, additional living shoreline construction at Hog Island, and new living shoreline construction at the New Point Comfort Natural Area Preserve.
- Staff drafted and submitted a proposal to the VOF's Coastal Resilience and Trees Fund to offer mini-grants to FTF participants to construct living shorelines on their property.
- Staff drafted and submitted a proposal to NFWF's SWG to complete Phase II of the reach-based Ware River Project.
- Added additional business listings to online FTF database.
- Supported embedding success stories in FTF dashboards.
- Distributed and tracked press release on VDH SWAP funding for septic repairs.
- Developed FTF onboarding process and templates for MPPDC staff to send to new registrants of program.
- Coordinated with DCR's CFPF Supplemental Round 3 private property award recipients regarding whether they wish to proceed with the grant-funded projects.
- Convened a meeting with Dr. Derek Aday, Director of the Virginia Institute of Marine Science and Dean of William & Mary's School of Marine Science and Delegate Keith Hodges to discuss approaches to make the work of VIMS more relevant to the needs of rural coastal Virginia communities.
- Assisted the new owners of the Cardinal Campground located in Gloucester County with assistance on dealing with failing septic issues associated with the campground. Coordinated with VDH to better understand the conditions of the campground septic drain field and options for addressing the water quality challenges.

- Provided Essex County staff with information regarding certified Planning Commissioners training program.
- Participated in an investor relation call for Natrx regarding third-party capital market investors trying to better understand opportunities within the Chesapeake Bay for investing in technologies that result in clean water, less carbon and removal of nitrogen.
- Consulted with Rachel Peabody, VMRC's Senior Advisor for Coastal Adaptation and Ecosystem Restoration regarding sunk and derelict vessel removal at Perrin Wharf and other coastal communities. VMRC has $3,000,000 for vessel sunk and derelict removal.
- Consulted with Delegate Keith Hodges regarding a bill to amend the pump and haul statute authorizing VDH to have the power to issue pump and haul for working waterfront businesses suffering from failing drain fields. In some cases, it appears to be cheaper to use permanent pump and haul than it is to spend money for a new engineered system repair when juxtaposed against the rate of sea level rise and soil characteristics. Pump and Haul statute needs to be modernized for use against problems of today.
- Consult with Andy Lacatell of The Nature Conservancy (TNC) regarding possible donation of TNC holdings in Mathews to the public access authority. TNC continues to divest fee simple ownership.
- Assisted with convening a regional opioid funding meeting to discuss regional collaboration to access additional opioid funds. Gloucester County will be serving as the regional coordinator for grant applications.
- Received a call from an absentee landowner on Belvin Creek Road in Gloucester County regarding a possible donation of 9 tidal wetland acres to the MPCBPAA. Coordinating with Gloucester County to ensure that the host locality does not object to the donation.
- Provided assistance to a King and Queen resident looking to access MPCBPAA land in King and Queen. Citizen wanted to better understand property management structures for various properties within King and Queen County and nontraditional uses like medal detecting.
- Participated in the VCRMP TAC meeting in Williamsburg on March 16.
- Participated in interview with the Virginia Mercury regarding MPPDC dredging and coastal resilience activities: *As channels fill, Middle Peninsula gets OK for faster dredging approvals* - Virginia Mercury.
- Gave presentation regarding MPPDC resilience programs and efforts during the March 22 RAFT One-year Progress Workshop.
- Docks of the Bay Marine Construction contacted MPPDC with interest in becoming a part of the FTF. Staff sent survey information and Docks of the Bay is now an approved FTF business partner.
- Staff provided FTF business survey information to dredging company Harbor Dredge and Dock.
- Staff consulted with a Mathews resident interested in dredging a shoaled creek. He was directed to input as much detailed information into MPPDC Fight the Flood program.

- Consulted with FTF business, RES, about updating profile information on the FTF website.
- Participated in an interview by Duke University graduate student exploring challenges pertaining to residential septic systems in rural coastal communities.
- Coordinated with Wetlands Watch staff regarding proposal for VOF/WW Coastal Resilience and Trees grant.
- Hosted coordination meeting for dredging projects at Davis Creek and Winter Harbor with USACE Norfolk District and Mathews County staff. USACE has federal funding for each creek and coordination occurred regarding Davis Creek, where MPPDC and Mathews County have secured state grant funds.
- Hosted the April 14 Local Government Administrators meeting where DEQ Environmental Justice proposed permitting guidance, VDH transfer of CBPA septic pumpout program, and VDOT Six Year Improvement Plan updates were discussed.

May 2023

- Coordinated with DEQ staff to prepare for additional training and discussions between DEQ and local government staff for VA Stormwater Management Program opt-out localities. Training to be held during the May MPPDC local government planners meeting.
- Coordinated with VDH and local government staff to schedule a meeting to finalize necessary details regarding the transfer of CBPA septic pumpout program responsibilities over to VDH. Meeting to be held on May 24.
- Reached out to Matt Crane, Tyler Technologies, Inc., about the MPCBPAA Reservation Site to address an issue of two hunting parties reserving the same hunting track. Fixes have been made to the website. Also, MPPDC staff requested a meeting with Tyler Technologies to upgrade the reservation site.
- Attended the Bipartisan Infrastructure Law (BIL) Funding Introductions Meeting on May 8th hosted by Virginia CZM. The funding may assist projects for land acquisition, habitat restoration and habitat restoration planning. The Notice of Funding Opportunity (NOFO) is expected in mid-May, letters of interest are due to the Virginia CZM program in mid- June, and the award notice is expected in 2024.
- Met with Coastal Technologies Inc. regarding participation in the FTF program.
- Consulted with two Middle Peninsula residents interested in the FTF program. Staff provided residents with FTF homeowner survey information.
- Provided FTF business survey information to Portadam, Inc. Staff are in the process of vetting and approving the business.
- Received an online workshop on the update and workflow of the FTF program ArcGIS platform. This will allow staff to track and manage the status of FTF participants.
- Begun to assemble FTF template packets with a cover letter, financial tools, and resiliency businesses to send to every FTF participant.
- Continuing to work on Coastal TA FY23 Product 5: a community inundation assessment and

analysis for the Bavon Community at New Point. MHW and MLW inundation dates have been established for Lighthouse Road and for the residing community.

- Began developing a policy document for the FTF Program.
- Consulted with Mathews County resident regarding Resource Protection Area encroachment and VMRC jurisdictional issues. The encroachments as described seem to be a waterfowl blind, which is not considered an encroachment.
- Continued coordination for the Coastal PDC's broader impact training event to be held at the VIMSe later in May.
- Participated in a call with VDH regarding Perrindise marina septic and restaurant permitting issues.
- Convened a regional meeting with Middle Peninsula localities to discuss reassessment options and approaches using Gloucester County's assessment methodology and services which could be provided to localities interested. Regional reassessment could ensure a higher level of fidelity, defensible product, equitable outcome, and improve accuracy.
- Convene the May meeting of the local government administrators. Discussion items included regional public relations, multi-use trails, reassessment, and Three Rivers Health District update.
- Participated in a Virginia Tech panel discussion interested in knowing more about climate resiliency and local tipping points including what factors or concerns drive local government or property owners to change perspectives and do something different.
- Participated in a conference call sponsored by the US Department of Commerce Economic Development Administration, regarding rolling submittals for resiliency-based projects for qualified localities in the Middle Peninsula eligible for FY 23 disaster funding.
- Participated in interview with reporter from Gazette Journal regarding the MPPDC dredging projects.
- Held debrief discussion with NOAA Chesapeake Bay Office staff regarding MPPDC proposal for NOAA Building Capacity and Engaging Underserved Communities proposal which was not selected for award. Discussed strategies for improvements to the proposal and are planning to resubmit during the next round.
- Met with NOAA Knauss Fellow who inquired about MPPDC's efforts and programs related to flood mitigation and coastal resilience. Scheduled future field trip for Knauss Fellows involved in resilience to visit MPCBPAA properties and learn more about MPPDC programs firsthand.

June 2023

- Hosted training between DEQ Stormwater staff and local government staff for VA Stormwater Management Program opt-out localities during the May MPPDC local government planners meeting.
- Presented to the YRSCBR during the June 8 meeting regarding the MPCBPAA structure and ongoing programs and current MPPDC coastal resilience and habitat restoration projects.
- Held training with VDH and local government staff on May 24 to finalize necessary details

regarding the transfer of CBPA septic pumpout program responsibilities over to VDH.

- Reached out to Matt Crane, Tyler Technologies, Inc., about the MPCBPAA Reservation Site to address an issue of two hunting parties reserving the same hunting track. MPPDC staff is still working to schedule a meeting to upgrade the reservation website.
- Vetted and approved Portadam, Inc. as a new FTF partner business.
- Vetted and approved Earth Systems Management, LLC as a new FTF partner business.
- Finalized all FTF template packets with a cover letter, financial tools, and resiliency businesses for every FTF participant. FTF template packets were sent to every eligible FTF participant currently in FTF.
- Continuing to work on Coastal TA FY23 Product 5: a community inundation assessment and analysis for the Bavon Community at New Point. Began to build list of alternatives and precautionary measures homeowners can take to extend the time they have in the community.
- Hosted a meeting between the USACE Norfolk District, Mathews County and MPPDC regarding coordination for the dredging of Davis Creek in Mathews County.
- Met with NOAA Chesapeake Bay Program Office staff regarding opportunities for NOAA grant funding coastal resilience and habitat restoration projects in the region.
- Hosted the quarterly Coastal PDC meeting on May 25 which included roundtable updates and discussion among the PDCs and Virginia CZM staff and broader impact training between VIMS and Coastal PDC staff.
- Continued to coordinate a proposal for the US Department of Commerce Economic Development Administration FY 23 disaster funding for coastal resiliency related infrastructure.
- Assisted two citizens with loan applications and income verification for living shoreline construction.
- Developed and submitted application for NOAA/Virginia CZM Section 306A funding for rehabilitation of the public observation deck at the New Point Comfort Natural Area Preserve in Mathews County.
- Presented to the Accomack-Northampton Planning District Commission's Navigable Waterways Committee regarding MPPDC's efforts to study and launch a municipal dredging program during the May 30 committee meeting.
- Worked with Essex County's GIS Coordinator to collect conservation parcels in Essex to create an annual map for Essex County Conservation Alliance (ECCA). Essex County's GIS Coordinator created the map and provided tax easement and tax parcel data to MPPDC.
- Staff finalized an operational policy document and GIS Data Management Policy document for the FTF Program.
- Updated the MPCBPAA reservation site with information on Belvin's Creek Property. Also add a new property named Power-King Nature Area.

- Attended a meeting hosted by the Virginia CZM to discuss the various funding opportunities created through the BIL and Inflation Reduction Act (IRA).
- Attended a webinar titled “Intro to ECHO: EJScreen in ECHO” hosted by EPA. The webinar focused on how to use the ECHO facility searches to learn about environmental and demographic data from EPA's EJScreen.
- Attended a Blue Catfish meeting held at Advantus Strategies in Richmond to discuss possible funding and program implementation concepts for proposed draft program design under development.
- Consulted with Justin Williams, Director of DEQ’s Office of Watersheds and Local Government Assistance Programs regarding CBPA regulations related to public water access recreational facilities owned by the MPCBPAA. Provided DEQ with a white paper, explaining the history behind Public Access Authorities and the need for guidance to assist with better understanding what public access facilities are under the CBPA.
- Consulted with Earth Systems Management, a FTF business regarding need for aqua drone survey assistance as part of the Wake Boat ramp post dredging permit requirements.
- Provided Middle Peninsula Local Govt Administrators with information related to the FY 23 BIL Competitive Grant Schedule for Land Acquisition and Habitat Restoration.
- Participated in a meeting on June 22 to provide input and feedback on a VIMS model for shoreline protection and habitat restoration priority locations in the Mobjack Bay.
- Consulted with a Gloucester County campground regarding various funding options to address septic failures at the campground.
- Convened the monthly meeting of the Middle Peninsula Local Government Administrators. Agenda items included a discussion of Blue Cat funding, NOAA land acquisition funding, and FEMA Federal Flood Risk Management Standard (E.O. 13690) (FFRMS).
- Received an update from Ron Gorton regarding flocculant training for dredge material and the use of “fines”.
- Convened the June meeting of the MPCBPAA. Agenda items included approval of drat budget, update on Captain Sinclair’s Recreational Area improvements, Hog Island restoration, dredging, and Infrastructure funding forthcoming.
- Referred a Gloucester County resident with permitting and pier building question to a local FTF marine contractor for assistance.
- Continued web maintenance of the FTF website.
- Graphic design updates to the FTF welcome packet.
- Coordination with Chesapeake Bay National Estuarine Research Reserve – Virginia (CBNERR-VA) special video project on FTF program and development of website materials featuring FTF business living shoreline products to enhance the educational and interactive experience of the website.

- Assisted a local dredging contractor with completing survey to be considered as a participating business in the FTF Program.

July 2023

- Updated FTF website's investments page to show that the total level of grant and loan investments attained via the program have now reached over $27M since the program's inception in 2020.
- Advised CBNERR staff regarding development of public workshops in the region focusing on addressing property owner flood protection needs and outreach promoting participation in the FTF program.
- Shared additional information from VDH to local government staff regarding finalization of necessary details regarding the transfer of CBPA septic pumpout program responsibilities over to VDH.
- Coordinated a demonstration of flood wall protection technology by FTF Business, Portadam, for an upcoming Local Government Administrators meeting.
- Continuing to work on Coastal TA FY23 Product 5: a community inundation assessment and analysis for the Bavon Community at New Point Comfort.
- Continued to coordinate a proposal for the US Department of Commerce Economic Development Administration FY 23 disaster funding for coastal resiliency related infrastructure.
- Assisted one citizen with loan applications and income verification for living shoreline construction.
- Met with Virginia CZM and NOAA staff at the New Point Comfort Natural Area Preserve in Mathews County to discuss MPPDC initiatives and NOAA/Virginia CZM funded projects.
- Developed and submitted four applications for NOAA and NERRS Bipartisan Infrastructure Law funding for conservation projects in Middlesex County and King and Queen County.
- Partnered with VMRC on the development and submittal of two applications for NOAA BIL funding for 3 habitat restoration projects (Hog Island, New Point Comfort Natural Area Preserve, and Captain Sinclair's Recreational Area West) and 1 habitat restoration project for beneficial reuse of dredged material for living shorelines and other habitat restoration, coastal resilience, and public access needs.
- Drafted and submitted a proposal to the VOF's Coastal Resilience and Tree Planting grant program to install permeable pavers at the Captain Sinclair's Recreational Area. This project will help mitigate flood waters, increase infiltration of water, and create an ADA compliant access location that is close to the new fishing pier.
- Developed scope of work for the development of website materials featuring FTF business living shoreline products to enhance the educational and interactive experience of the website.
- Received several new business registrants under FTF. Staff is reviewing qualifications of each business.

- Requested a technical assistance memo from DEQ requesting assistance with examining the CBPA and accompanying regulations related to "beaches and other public water-oriented recreation areas" within the definition of "water-dependent facilities." Received the memo and will be provided to Middle Peninsula local planners.

- Initiated review on the DCR CFPF Round 4 manuals now open for public comment. The program is shifting away from grants toward loans. Encouraging all citizens who have registered in FTF to express public comment on the program shift.

- Coordinated with Delegate Keith Hodges for a visit by Lieutenant Governor, Winsome Seares. The Lieutenant Governor requested information on rural coastal economic development issues.

- Participated in the NOAA Climate Resilience Regional Challenge Informational Webinar during July and organized concepts for Middle Peninsula proposal(s).

- Provided Mike Walls, Mathews County Board of Supervisors member with historical right away and aerial photography of the Mathews Heritage Park site located in Moon, Virginia.

- Attended the RRBC meeting held in Tappahannock to present on the MPPDC water management economy initiative and how the FTF program works.

- Attended the VCRMP TAC Quarterly Meeting held in Richmond. Continued to advocate for financial and policy needs unique to rural coastal Virginia.

- Met with Virginia CZM staff regarding logistics for submitting local and regional resilience projects into the state resilience priorities spreadsheet and VCRMP resilience project database.

- Participated in a stakeholder meeting conducted by VIMS for development of planning tool for siting oyster structures projects in the Middle Peninsula and provided feedback to improve the outputs so that they provide useful information that can assist with advancing projects.

- Drafted and submitted an application to the Boating Infrastructure Grant Program to upgrade the north end of Upton's Point Marina with a floating dock system.

- Drafted and submitted a proposal for the FEMA Hazard Mitigation Grant Program (HMGP) for the 2027 All-Hazards Mitigation Plan update.

- Met with VTC staff to discuss opportunities and prospects for VTC funding in the region.

- Met with John Sanderson, Virginia Interactive, to discuss the MPCBPAA Reservation site issues and the current cooperative procurement. Staff is working with John to schedule a meeting.

- Published content updates to the FTF website regarding mitigation options for property owners.

- Updated websites (FIT, Virginia Water Trails, Virginia Coastal Wilds) with new GA4 code for Google Analytics to ensure proper tracking of metrics moving forward.

- Developed next steps for developing e-commerce section on Virginia Coastal Wilds website.

August & September 2023

- Updated FTF website's investments page to show that the total level of grant and loan investments attained via the program have now reached over $27M since the program's

inception in 2020.

- Attended and presented at the 2023 Resilient Virginia Conference on FTF and water management economy work.
- Advised CBNERR staff regarding development of public workshops in the region focusing on addressing property owner flood protection needs and outreach promoting participation in the FIT program.
- Shared additional information from VDH to local government staff regarding finalization of necessary details regarding the transfer of CBPA septic pumpout program responsibilities over to VDH.
- Coordinated a demonstration and training on the use of and how to install a flood wall protection technology offered by FTF Business, Portadam for the September Local Government Administrators meeting.
- Continuing to work on Coastal TA FY22 Product 5: a community inundation assessment and analysis for the Bavon Community at New Point Comfort.
- Coordinated with the USACE, Middlesex County, Broad Creek marine owners to discuss worsening shoaling issues at the mouth of Broad Creek in Middlesex County. Received multiple reports of vessel, grounding's entering Broad Creek.
- Provided assistance to the Lancaster County attorney regarding public access easement questions on public waterfront property.
- Provided assistance to a Gloucester County resident regarding a working waterfront zoning compliance issue. The working waterfront property lost its existing legal nonconforming use status. The owner is interested in re-opening a working waterfront business. Provided options and directed citizen to talk to the Gloucester County Zoning Administrator.
- Consulted with property owners and business owners on Perrin River regarding sunk vessels at Perrin Wharf. Advised citizens and business owners that Gloucester County is applying to VMRC for funding to remove the sunk vessels.
- Coordinated with FTF businesses regarding a property owner seeking MPPDC living shoreline loan funding for design and construction of solution for severe erosion at private property located on the Piankatank River in Middlesex County.
- Consulted with representatives from the Bay Consortium Workforce Investment Board regarding workforce training needs across the Middle Peninsula.
- Participated in a Wetlands Watch NOAA funded, Living Shoreline PSM meeting to discuss, living shoreline, engineering designs, and VMRC permitting process, including how local Wetlands Board approach permitting issuance.
- Served as reviewer for Chesapeake Bay Trust request for proposals for Chesapeake Bay wetlands protection and preservation planning services.
- Provided an update to Mathews County citizens requesting a status report on funding from NOAA to repair the overlook at New Point Comfort Natural Area Preserve. Advised citizens that

MPPDC staff is waiting on the release of the contract from NOAA.

- Received a call from a representative from the Sawgrass community homeowners association located on Sarah Creek off of York River in Gloucester County regarding erosion and the need for grant or loan assistance.
- Participated in the VCRMPTAC meetings. Provided input on financial and other implementation expertise which MPPDC is able to contribute.
- Provided input on numerous proposals being submitted to NOAA under the federal infrastructure funding for coastal resiliency assisted VIMS, RISE, and several other NGOs seeking funding to assist Middle Peninsula Land Trust and local governments with flooding solutions.
- Continued providing assistance to Cardinal Campground, located in Gloucester County, struggling with VDH permitting issues and assisted the campground with financing under the MPPDC on site repair revolving loan program.
- Continue to provide permitting guidance assistance for the owners of Perrindise marina, struggling with septic issues and opening of a restaurant. Provided the necessary assistance which resulted in the issuance of the final permit, allowing the restaurant to open.
- Received notice from VOF's Coastal Resilience and Tree Planting grant program that the MPPDC proposal to install permeable pavers at the Captain Sinclair's Recreational Area was not funded.
- Received several new business registrants under FTF. Staff is reviewing qualifications of each business. Vetted three new businesses and added them to the FTF website.
- Management of FTF included performing (90) administrative tasks, (24) phone calls, and (27) correspondences.
- Drafted updates to the financial tools outreach materials in FTF used in mailings to participating property owners.
- Drafted an updated data retention policy for FTF.
- Attended the quarterly in-person Coastal PDC meeting at George Mason University's Potomac Science Center, hosted by the Northern Virginia Regional Commission (NVRC).
- Added 6 FTF registration entries for low lying roads that are subject to frequent tidal flooding in Essex County.
- Attended the monthly RAFT Regional Resilience Equity Workgroup meeting.
- Coordinated with FTF business, Native Shorelines, regarding construction of living shoreline to protect eroding tidal marsh at the MPCBPAA Captain Sinclair's Recreational Area. Permit application is under development.
- Drafted and sent out 2 emails to all FTF participants about DCR Draft Manual Changes and opportunities for public comment.

- Reviewed the final DCR CFPF and Resilient Virginia Loan Fund Round 4 manuals. Coordinated with localities and other stakeholders regarding Round 4 applications. Held internal meeting to prioritize Round 4 applications.
- Virtually attended the VCRMP TAC Quarterly meeting on September 19. Continued to advocate for financial and policy needs unique to rural coastal Virginia.
- Submitted local and regional resilience projects into the state resilience priorities spreadsheet and VCRMP database.
- Added new business listings to FTF website.
- Created compliance page on FTF website.
- Applied and received brand ambassador approval from Perfectly Natural Soap, the first official partner for Virginia Coastal Wilds e-commerce program.
- Attended the US EPA WaterTA webinar regarding how to help communities solve water challenges on July 31.
- Coordinated and hosted meetings with Middlesex County, USACE Norfolk District, and United States Coast Guard (USCG) regarding dangerous shoaling conditions which have occurred in the entrance of the Broad Creek channel in Deltaville. USACE is to conduct immediate bathymetric surveys in September which will enhance the County's decision-making process for how to address the immediate public safety and marine commerce needs.
- Participated in the USDOT NOAA Introduction to the BIL and Federal Requirements Webinar on September 6.

Appendix B: Accrued Benefits to the Virginia Middle Peninsula Community as a Result of Investment by the Virginia Coastal Zone Management Program

Middle Peninsula Planning District Commission
Accrued Benefits of the Virginia Coastal Zone Management Program
FY22 Narrative, November 2023
Prepared by Consociate Media

Sea level rise. Coastal flooding. Battered shorelines.

Far too often, when you hear government officials and the media talking about sea level rise, their tone is futuristic, like it's the trailer for a movie "coming soon to a theater near you."

But on the Middle Peninsula in rural coastal Virginia, the movie is so old it's practically a classic.

Businesses and homeowners alike have been living and operating in the fragile environment where the water continues to move up and in against the land for years.

Nine years ago, with the support of an investment from the Virginia Coastal Zone Management Program (Virginia CZM), the Middle Peninsula Planning District Commission (MPPDC) made a strategic and focused decision to view water management in the rural coastal communities it serves as an asset. And it's worked. The data shows it.

That hasn't been easy given the history of the region.

Years of regulatory overlap, combined with a strong need to maintain clean waters and a resilient shoreline, created an environment that made it difficult for businesses to grow, homeowners to protect their property and the economy to thrive.

That shift to viewing water as an asset, though, has added up to real dollars – tens of millions of dollars – and real accrued value and benefits to the residents of the region.

Even with those successes, the water continues to pose a clear and present danger.

No where is that danger more prevalent, or does it illustrate the continued convergence of multifaceted policy problems, than in the area of septic management.

Narrative updates in this accrued benefits report delivered for FY22 will focus on this septic challenge in particular.

The ability to shine a light specifically on the septic issues plaguing the Middle Peninsula comes as a direct result of the MPPDC understanding and working in septic management since 1994 and the Virginia CZM's investment in the region, which enables the MPPDC planning staff to focus on coastal resiliency planning.

The early years with the Virginia CZM's funding enabled the MPDDC to crack the door open on this issue. This latest year of funding, backed by years of accrued benefits, allowed the MPPDC to blow the door wide open on the issue and identify the steps required to help address it.

Welcome to Camp Cardinal

Located along the banks of the Chesapeake Bay's Severn River at Gloucester Point, Virginia sits Camp Cardinal RV Resort.

For years, despite changing hands, the resort was family-owned and owner-operated.

When the latest family decided to retire from the campground business, they sold the park to a real estate investor located in Austin, Texas. That investor saw great possibilities with the resort, which he later named Camp Cardinal.

With its waterfront location, feeling of peace and serenity and abundance of outdoor recreation activities, he saw an opportunity to elevate, grow and reinvent the resort, ultimately creating a destination more people flocked to see, a business that created more jobs in the region and an asset that the community was proud to have in its backyard.

While the resort overall appeared to be in good working order, modernizing it, investing in activities to enhance the experience there and building on its natural beauty were part of the long-term vision and plan.

But a problem lurked below the surface in the septic system, a problem that regulators working on decades old rules would advise him to spend hundreds of thousands of dollars to address.

A Failure vs. Environmental Changes

Here's the thing about septic systems – they are made of pipes that carry sewage to a tank that holds the sewage. A drain field then disperses wastewater into trenches or pads dug below the ground surface, allowing the water to percolate into the soil for final removal of nitrogen and harmful bacteria.

At Camp Cardinal, the pipes didn't fail. They are still working.

The tank didn't fail. It's still holding sewage.

The majority of septic infrastructure remains intact, but rising water tables and flooding are turning the once dry soils needed to treat the septic effluent into goo.

The only options available to the business owner were for the Virginia Department of Health to declare the system failed (which is a bell that can't be un-rung) and then start a pump and haul operation (a temporary solution to protect water quality and human health) until a new system could be installed.

The regulations as they currently exist are costly and limited. Why? Because until now regulations never contemplated so much water coming from so many different directions, which is causing catastrophic challenges to soils management.

Meanwhile, the business suffers. The community suffers. The employees suffer.

Of note, a pump and haul operation could be a cost-effective solution for a business, but the Virginia Department of Health doesn't have the power to issues a pump and haul permission. Only local government can do that. And that can only be done if the entire system had failed.

As a result this business was forced to navigate through a regulatory malaise that led to facing significant costly repairs on a septic system that might be under water in 20 years.

Access to the funds to pay for those repairs are another example of the Virginia CZM accrued benefits. These types of septic infrastructure repairs banks generally do not want to loan funds for.

Thanks to a Delegate Keith Hodges bill introduced in the 2023 General Assembly session, Camp Cardinal was able to access loan funding to finance the repair.

The legislation, geographically targeted for rural coastal Virginia, authorized the State Water Control Board to provide loans from the Virginia Water Facilities Revolving Fund to local government for the specific purpose of correcting onsite sewage disposal problems.

In other words, it provides relief to businesses who need to access funding they can't always get from banks to make repairs required to keep their operation running.

Ubiquitous Challenge

This problem is not limited to just one business or just one property.

Rather, the problem is becoming a universal waterfront problem ubiquitous to rural coastal Virginia.

However, the regulations that govern these septic operations are written for the entire Commonwealth, leaving rural coastal Virginia with a problem that's only current solution is written for regions that don't face the same issues.

Virginia's water management regulations that govern water quality and public health assume that water is getting pushed "downhill."

But the water is coming in the back door now. It's coming upland.

As a result, septic regulations need to be modernized to deal with the problem of more water coming from the ground up, the sky down and across the landscape.

The pump and haul regulations referenced for Camp Cardinal above have not been touched in decades.

In part, the MPPDC is more attune to this issue than other regions because it administers the only revolving loan fund in Virginia – now capitalized at over $3 million – to provide help to property owners facing these types of challenges.

The MPPDC continues to work to use the lessons learned at Camp Cardinal and other waterfront properties to ensure future investors into rural coastal Virginia property and businesses make their investment in a resilient manner and have options to address coastal problems.

Fight the Flood

That's where Fight the Flood comes in, another MPPDC program supported by Virginia CZM investment over the years.

In 2020, after many years of ongoing financial support from a variety of federal and state partners including the Department of Conservation and Recreation Flood Plain Management Program; Virginia Resource Authority (VRA); DEQ; Virginia CZM through NOAA Coastal Technical Assistance investment, the MPPDC launched Fight the Flood (FTF) (www.fightthefloodva.com), an online marketplace connecting property owners facing rising flood waters with tools and funding to contract with specialized businesses who can help evaluate, design, and build solutions to build more resilient shorelines and protect properties.

Three years later, the MPPDC Fight the Flood program remains the only online flood resilient marketplace in existence in the U.S.

In 2021, the MPPDC continued to enhance the FTF program by refining the financial assistance application to collect detailed property information from residents; developing more sophisticated mapping software that showcases those financial assistance applications in a visual way, helping MPPDC staff members see more clearly what financial tools may be more readily available to support property owners while also seeing where property owners are located in the hopes of developing joint applications; and submitting two rounds of grant applications on behalf of property owners to the Virginia Flood Fund.

By 2022, the FTF Program investment in the Middle Peninsula's flood protection had topped over $18 million in direct loans and grants.

By July 2023, 176 applications had been submitted Requesting $54,533,118 for Middle Peninsula Flood Protection. Over $27 million has been awarded.

FTF is widely regarded as the nation's leading flood program.

Coastal Cancer

There is a slow demise happening on the land in rural coastal Virginia because of the threat of water.

Rising water wins each and every time, and as a result, will slowly kill the businesses and the land.

The septic issues highlighted in this narrative are a prime example of that.

Some will suggest managed retreat, moving further inland and abandoning the properties being encroached upon.

But in the Camp Cardinal example, a business with millions of dollars in loans and families' livelihoods at stake, it's not economically viable.

What needs to happen, and what MPPDC will continue to build on in its coastal resiliency work, is a better understanding now of what can be done to protect both water quality and economic vitality as the water continues to rise.

The MPPDC will also continue to do community wide analyses to look ahead at what other property owners may face, in addition to septic issues, as sea level rises and how communities can address it. In one specific area on the Middle Peninsula – Bavon – the MPPDC is already analyzing each and every parcel of property and overlaying each with flooding maps to see what could happen through the end of the century to the mean low and high-water lines.

What parcels could be developed? What pain points could residents face? Will roads flood? How will that impact families making decisions about where to live, how to work and when to move all together?

The intent of this illuminating work is to show people – government leaders, businesses and residents – the coastal cancer eating away at the region.

But by continuing to take a look at how to modernize current regulations and bring innovative solutions to build resilient shorelines to market, the MPPDC can lead the community to help fight the cancer.

Appendix C: Community Inundation Assessment and Alternatives Analysis

Coastal TA FY 23 Product 5

Definitions

Mean High Water - The average of all the high-water heights observed over the National Tidal Datum Epoch.

Mean Low Water - The average of all the low water heights observed over the National Tidal Datum Epoch.

Mean Higher High Water - The average of the higher high-water height of each tidal day observed over the National Tidal Datum Epoch.

Introduction

Coastal communities along the eastern seaboard will experience inundation throughout their communities, including inundation of roads, critical infrastructure, residential structures, and utilities. According to the Virginia Resilience Master Plan:

> *Nearly six million people, or 70% of the state's population, call coastal Virginia home. Our coastal regions are thriving economic hubs, hold unique cultural resources, and offer unparalleled natural beauty, which collectively shape diverse landscapes and communities. However, coastal Virginia faces growing threats. Between rising sea levels and changing precipitation patterns, Virginia has already recorded changes to the frequency and intensity of floods that pose increasingly greater risks to our communities.*
>
> *Flooding affects many Virginians but does not do so equally. Each community faces varying levels of flood exposure, vulnerability to harm or damage, and associated risks, tied to its individual socioeconomic, historical, and physical context.*

With funding from the Virginia Coastal Zone Management Program, Middle Peninsula Planning District Commission (MPPDC) staff worked to develop a new methodology for conducting community flood inundation assessments and a strategic alternatives analysis. The methodology takes into consideration that water has been coming and will continue to come and that property owners (private and government) must manage against this slow-moving threat or lose considerable economic and functional value of land and improvements. Such slow-moving factors can contribute to the blight of rural areas.

Consequently, coastal property owners and local governments will experience pain points in an increasing manner that will influence homeowners' decisions to stay within their community or to move out, and government's ability to offer services in areas experiencing inundation.

What pain point will be the property owner's last straw? Will it be:

- Losing access to property due to flooded or inundated roads?
- Not having the ability to leave the property (i.e., To get to the grocery store, school, doctors appointments) due to flooded roads?
- Increased flood insurance premiums?
- The need for additional insurance to cover all property assets?
- Increased HMO insurance premiums?
- Loss of utilities, including power, air conditioning, well, or septic due to saltwater intrusion and/or high ground water?
- Salt patches in the yard due to standing sea water?
- Standing water within the foundation?
- The devaluation of the home?
- Not having the ability to sell the home?
- Personal safety due to impacts or threats of storm surge?
- Psychological or emotional distress associated with the impacts of the issues listed above?

Simultaneously governments experience pain points for inundated areas. To name a few:

- When are governmental services no longer provided to areas that may cause safety risk for personnel (i.e.. Inspectors, emergency management, etc.)? When road access inhibits passage? Or when homeowners no longer pay taxes?
- Should construction activities (i.e.. Building new homes) be restricted in areas that may become inundated to prevent loss in the future?
- Should there be investments in the area to reduce inundation?
- What are the tax revenue implications of inundated coastal areas with many of the highest valued homes? How will the tax burden shift and when?

Such pain points will leave property owners and governments with tough decisions on how to manage their properties and way of life.

Considering that responses to inundation will be extremely complex, challenging and involve many parties, this methodology is intended to serve as a clear, non-biased, and organized starting point for the consideration of all impacted parties.

Methodology

1. **Select a community** that is vulnerable to flooding and sea level rise.
2. Conduct a **community flood inundation assessment**.
   Road Assessment -
   a. First consider a "do nothing" scenario. If the community does not take action to mitigate or stop/reduce inundation, then when will transportation infrastructure be inundated and triggered a modal shift[1].
      i) Find or survey the elevation of road that is used to access the community of interest.
      ii) Find or calculate the water height at Mean High Water (MHW) and Mean Low Water (MLW) that will inundate the road.
      iii) Once the elevation of the road and the height of the water for inundation is found, then utilize a sea level rise modeling platform to determine the year in which the height of water reaches inundation levels. Below are 2 scenarios to consider in the inundation assessment that will assist in finding the year that modal shifts are expected to occur:

@ MHW - During what year are access roads inundated twice a day during high tides?
@ MLW During what year are access roads completely inundated during all tide cycles?

[1] Modal Shift - a switch from on form of transportation to another. In the pilot case when a road becomes impassable due to rising water, property owners will need to switch to boat in order to access their property.

b. Again, consider a "do nothing" scenario. If the community does not take action to mitigate or stop/reduce inundation, then when will properties become inundated with water (i.e.. Flooding during tidal events).
    i) Below are 2 scenarios to consider in the inundation assessment that will assist in finding the year that properties will become uninhabitable due to inundation in their yards:

@ MHW During what year are yards inundated twice a day during high tides?
@ MLW During what year yards become inundated during all tide cycles?

Parcel Inundation Assessment

a. First consider a "do nothing" scenario. If the community does not take action to mitigate or stop/reduce inundation, then when will parcels be inundated and become uninhabitable.
    i) Use a mapping tool to display parcels of selected area(s) and sea level rise.
    ii) Select the desired sea level rise scenario.
    iii) Evaluate the number of properties with no inundation, partial inundation, or complete inundation at various timeframes. MPPDC staff selected 2020, 2040, 2060, and 2080 to compare.

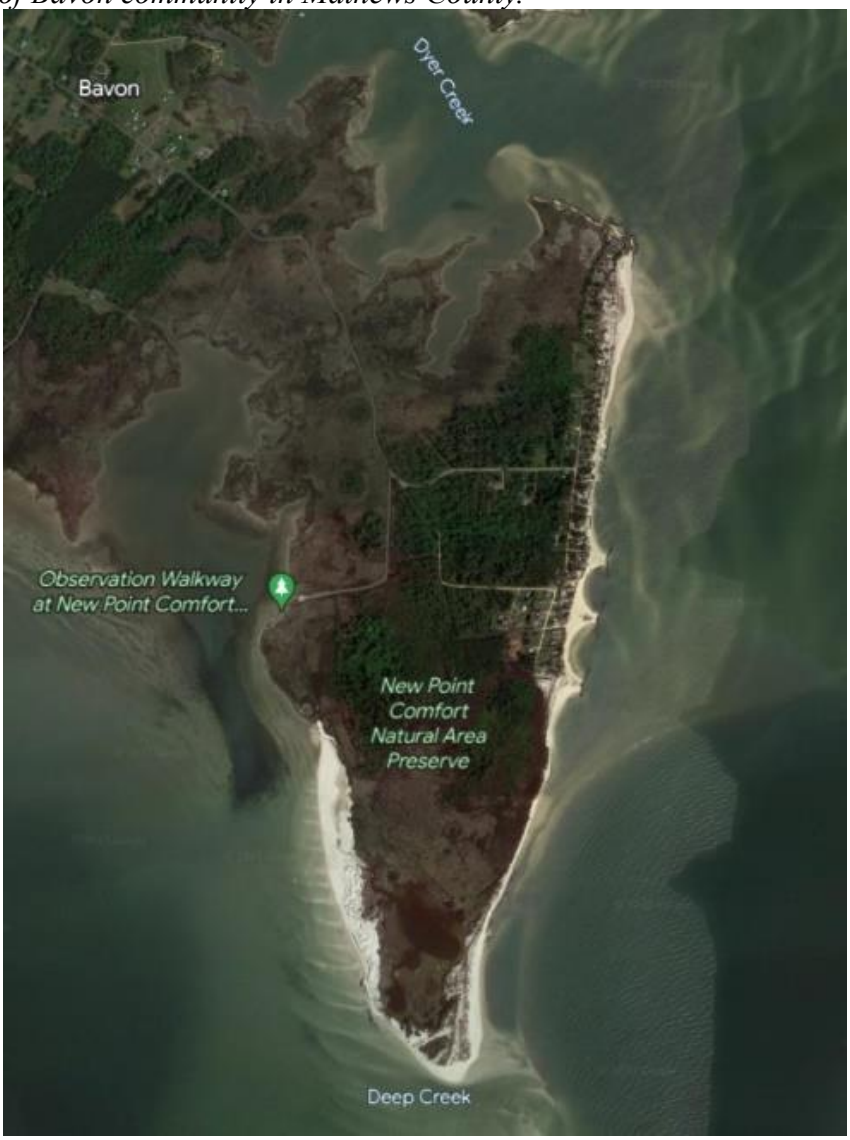
3. Conduct a **Comparative Assessment** –
    a. Gather total land values for the select community.
    b. Compare available land values. In this study 2005, 2011, and 2017 land values were assessed. This allowed MPPDC staff to understand land value trends over this course of time.

Community Impact Assessment Pilot – Bavon, Mathews County, VA

New Point Comfort is a beautiful coastal area located directly on the Chesapeake Bay in Mathews County, Virginia. New Point Comfort's stunning views and white sandy beaches have attracted people to its shores and made it a very sought-after community. The area consists of land elevations at or within a few feet of mean sea level with the highest elevations occurring on a subtle elevated ridge along the eastern side of the community. As the threat of sea level rise, recurrent flooding, storm surge and erosion become more imminent, the community of Bavon, an unincorporated community at New Point Comfort, has slowly begun to see and experience changes first-hand (**Figure 1**).

With the continuous and accelerating rise of sea level, increasing frequency and intensity of coastal storms, eroding shorelines, yard flooding, road flooding, and septic issues have become commonplace throughout the Bavon community. For these reasons, MPPDC staff selected the Bavon community as a pilot project area to apply the new methodology for conducting community flood inundation assessments and a strategic alternatives analysis.

Figure 1. *Map of Bavon community in Mathews County.*



Access Road Assessment & Modal Shift

The Bavon community is currently facing one of the greatest threats to coastal America, sea level rise. As sea level continues to plague Bavon, property owners, local and state governments, and the entire community will be faced with decisions on the future of the community; however since no legal or formal governmental structure exists for this unincorporated area, decisions are most likely to occur in a disjointed, disorganized and fragmented manner where independent parcel by parcel decisions and/or collective land use and emergency management policy decisions will be warranted. The high energy shorelines of Bavon are directly exposed to the Chesapeake Bay, putting the community at constant risk of flooding and erosion. Today, extreme high tides and storm events flood the state-owned road and right of way leading to Bavon from the west. This road is the sole road access to and from the community. The road functions as a causeway as it crosses low-lying tidal marsh areas before reaching the relatively higher elevations in Bavon. The road currently experiences both tidal flooding stemming from storm surges associated with coastal storms as well as atmospheric driven "sunny day flooding" and stormwater flooding from

precipitation events which flood the road due to the roadside ditches commonly being inundated with tidal waters. While specific data for flooding and inundation along this low-elevation segment of road does not exist, these road flooding events make it difficult for residents to leave their home to get groceries, go to work, or get to appointments an estimated 10 – 25 days on average with the flood frequency predicted to only increase in the future. Therefore, when considering a "do nothing" scenario where the community or individual property owners choose not to take action to mitigate, stop, or reduce inundation, it is critical to understand when the access road will be inundated and subsequently trigger a modal shift.

Road Elevation

To understand when a modal shift may occur due to inundation of the sole road accessing Bavon, the elevation of the road and the amount of water level rise needed to inundate the access road must be known. To do this, high resolution LiDAR elevation data acquired by VIMS (2019) was used to determine the elevation of Lighthouse Road leading into the Bavon community. In **Figure 2** Lighthouse Road is represented by road Section 3. The minimum, maximum, and average elevations of the road were determined relative to MHHW and MLW. The LiDAR data for Section 3 shows that at MHHW:

- The tide needs to rise 1.06 ft at the lowest (Min) spots of the road to be inundated;
- The tide needs to rise 1.68 ft at the highest (Max) parts of the road to be inundated;
- The tide needs to rise an average of 1.40 ft to inundate the road.

Using 1.40 ft as the average height that sea level will need to rise to flood Section 3, MPPDC staff will use available sea level rise models to capture a year when the modal shift may begin to occur. This will be triggered due to recurrent flooding that will occur at high tide on a daily basis, meaning that the road will be covered by tidal salt water for relatively short periods (< 1 hour – 3 hours) during the high tidal cycles twice a day.

The modal shift driven by the high tide datum will be largely controlled by the vehicle operator's tolerance and urgency for driving through salt water. Driving through any body of water is never advisable for obvious safety reasons and corrosion-related damage to vehicles, yet coastal citizens such as those living near sea level such as in Bavon, choose to do so on a regular and increasingly frequent basis due to personal necessities and priorities. The modal shift stemming from sea level flooding and inundation occurring from the mean high-water datum will vary from person to person and situation to situation. Someone needing to drive to the grocery store may choose to postpone their chores for a few hours and wait for the high tide to pass before doing so; whereas someone needing to drive a loved one to the hospital will not hesitate to drive through salt water to get to needed medical care.

Figure 2. *Aerial imagery showing the New Point Comfort area including the sole access road, Lighthouse Road represented as "Section 3".*

Table 1 provides a summary of the elevation data for the roads in the New Point Comfort Area and Bavon community. The orange highlighted cells are for the segment of road, Section 3 (Lighthouse Road) which serves as the sole access road for the Bavon community. The final column of data shows how high the water needs to rise to inundate the road at MLW meaning that salt water will be on the road surface 24 hours per day with shallower water occurring during low tide cycles and deepening during high tide cycles. The LiDAR data shows that for Section 3, with an average of 3.70 ft of sea level rise at MLW, the road will be inundated. This means that with 3.70 ft of sea level rise, at any given low tide, there will be water on the road leading into the Bavon community. The number 3.70 ft will be used to determine the MLW inundation date and the date for when standing water will be on Lighthouse Road.

Table 1. *Lidar data table showing the road sections and height of water when the road becomes inundated.*

Road Section	Min (ft MHHW)	Max (ft MHHW)	Avg (ft MHHW)	Avg (ft MLW)
1	0.86	1.77	1.25	3.55
2	0.93	1.73	1.25	3.55
3	1.06	1.68	1.40	3.70

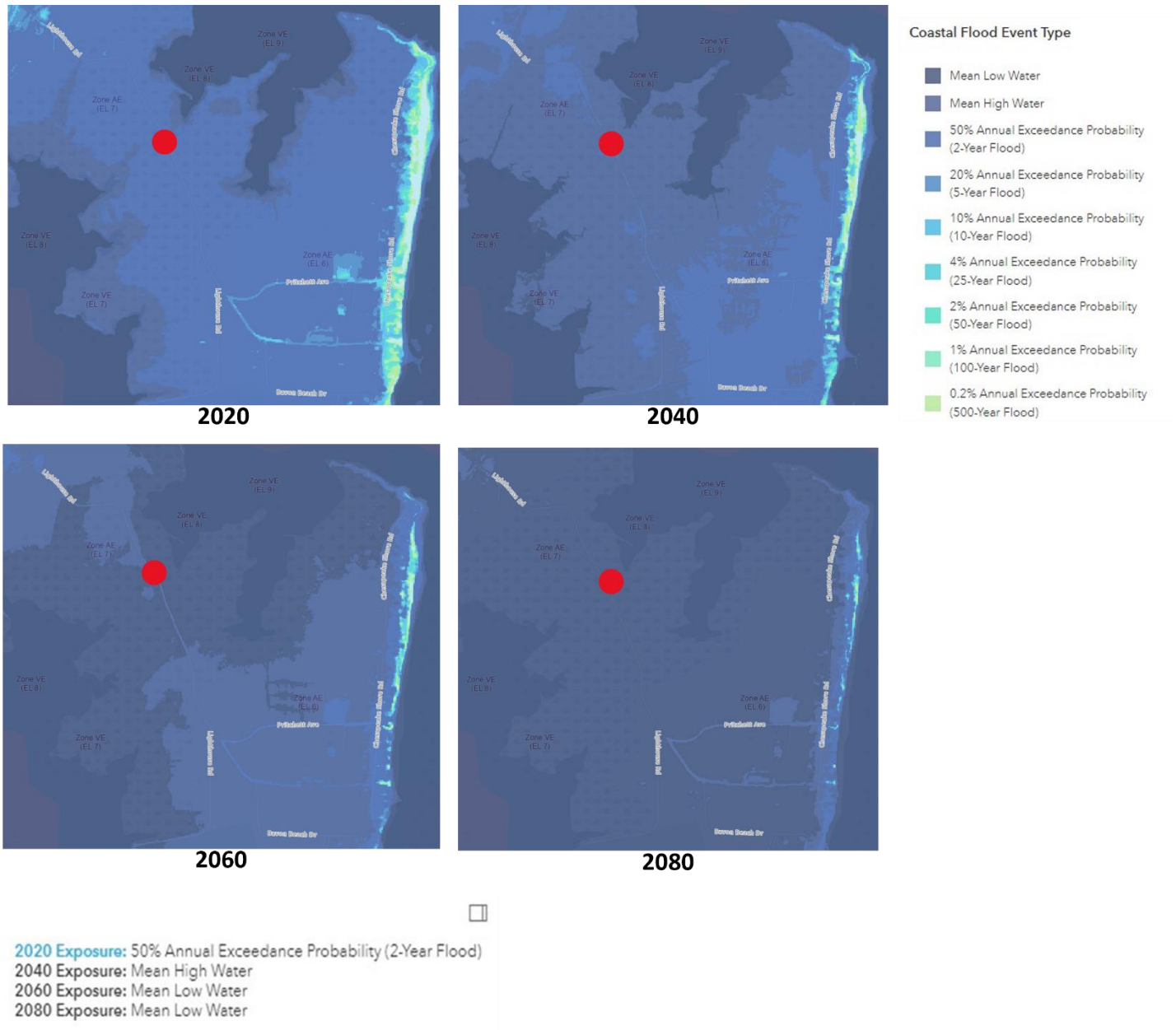
The Year of Inundation

MPPDC staff conducted an analysis using the Virginia Department of Conservation and Recreation (DCR) Virginia (VA) Coastal Resilience Web Explorer and the Virginia Institute of Marine Science (VIMS) VA Adapt Interactive Map to assess four time horizons: 2020, 2040, 2060, and 2080.

First, in the DCR Web Explorer, MPPDC staff analyzed Section 3 of Lighthouse Rd during each time horizon (**Figure 3**). Using a red point as a reference point for the average height of Lighthouse Road, Figure 3 shows that in 2020, there was a 50% annual probability of recurrent flooding. Using the same reference point on Lighthouse Road, in 2040 there is a darkening of the color indicating inundation of the road will occur at MHW, or during, leading up to, and following every high tide cycle. In 2060 and 2080, the area darkens again which indicates that Lighthouse Road will be inundated at MLW, or always. The flood hazard maps for both 2060 and 2080 show no difference between the two-time horizons of Lighthouse Rd.

In conclusion, based on this analysis using the DCR Web Explorer, Lighthouse Road will be inundated at MHW by ~2040 and at MLW by ~2060. This of course assumes that the Virginia Department of Transportation, who is the owner and responsible agency for maintaining the road, does nothing to elevate the road or mitigate the flooding in any way. Also, these are the years where a modal shift will occur. However, as mentioned previously this is largely dependent on the vehicle operator's tolerance and urgency for driving through salt water.

Figure 3. *Flooding during four horizons (DCR VA Coastal Resilience Web Explorer, 2023).*



Second, MPPDC staff used the AdaptVA mapping tool to assess the depth of water that will inundate Lighthouse Road when the sea level rise intermediate-high scenario, which is the scenario advised for long-term planning in Virginia, is considered. This scenario is consistent with the Virginia Coastal Resilience Master Plan. Also, to provide consistency between the DCR Web Explorer assessment and this assessment, the same four time horizons were analyzed (see **Figures 4 – 7**).

Figure 4. *2020 MHW Water Levels for the Intermediate-High Scenario. Lighthouse Road is labeled. (AdaptVA).*

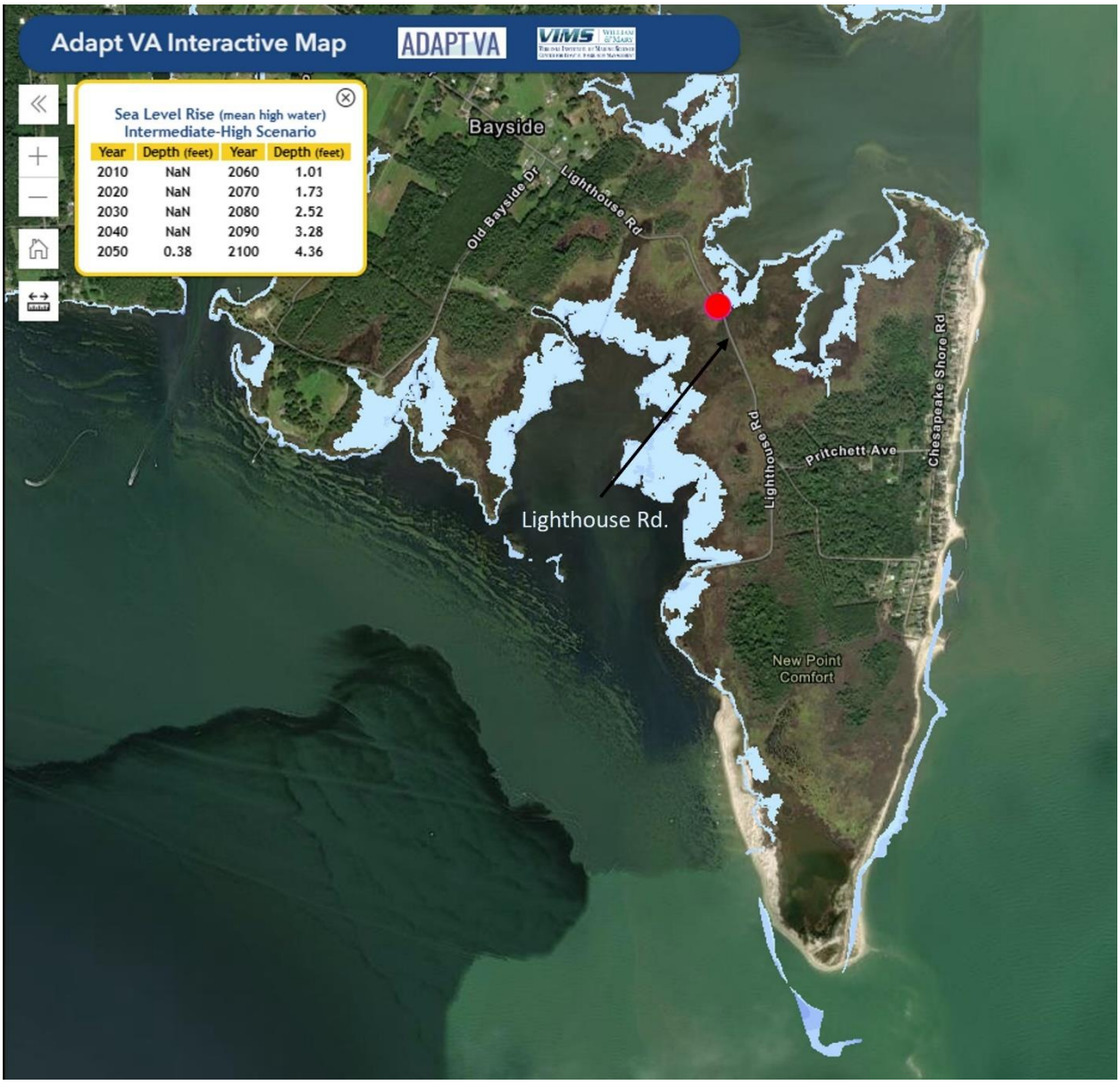


Figure 5. *2040 MHW Water Levels for the Intermediate-High Scenario. Lighthouse Road is labeled. (AdaptVA).*

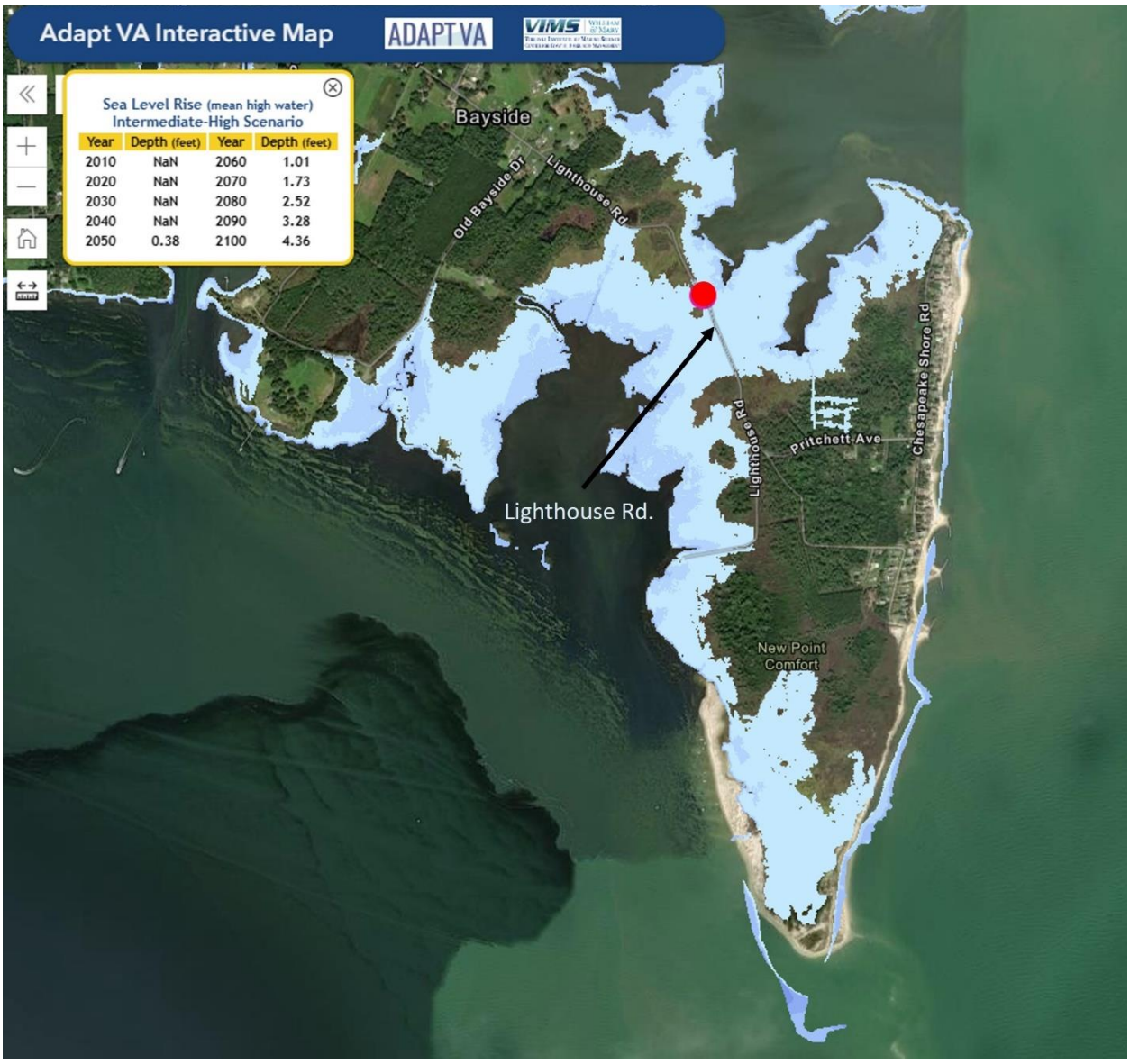


***Figure 6**. 2060 MHW Water Levels for the Intermediate-High Scenario. Lighthouse Road is labeled. (AdaptVA).*

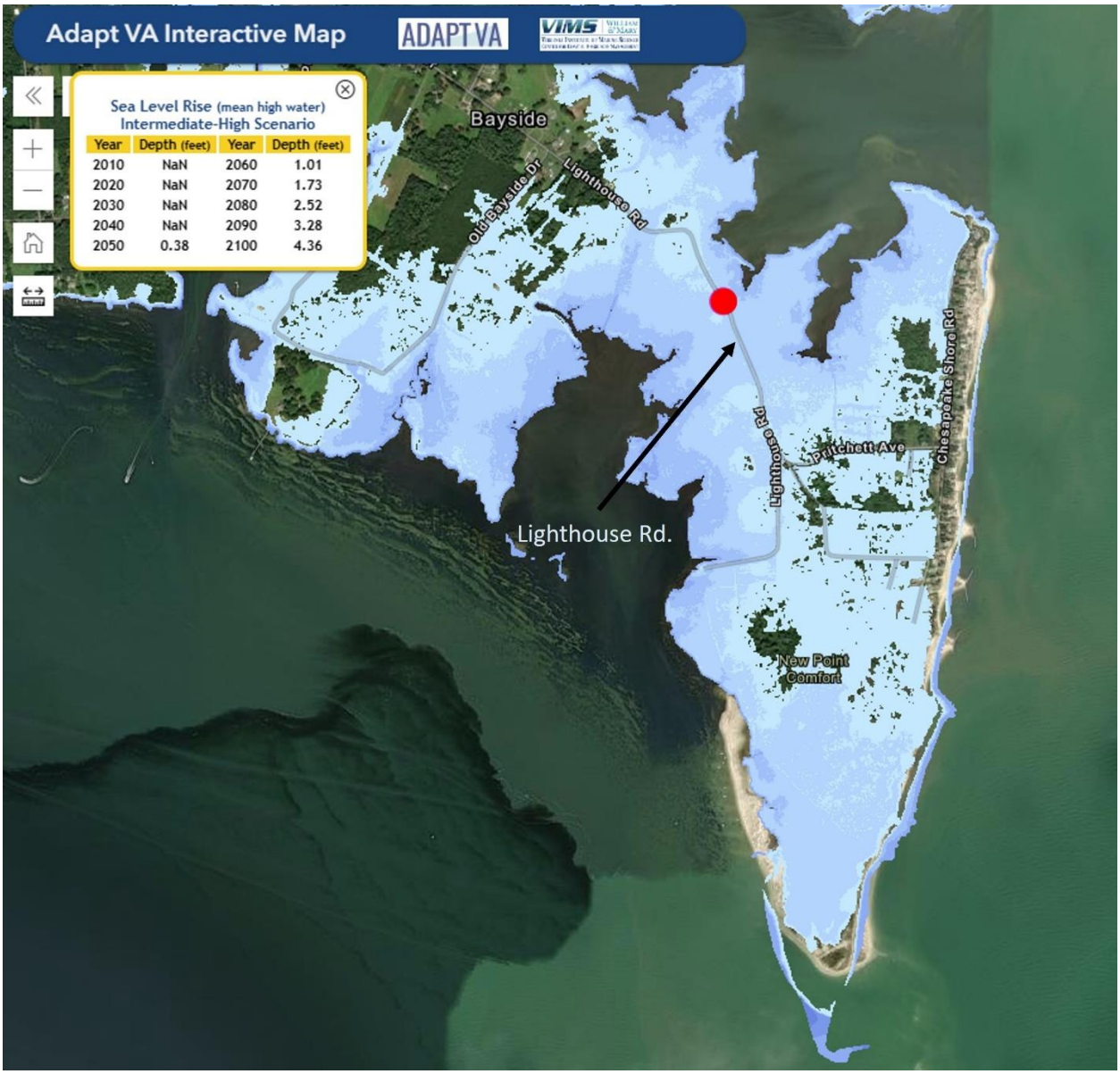
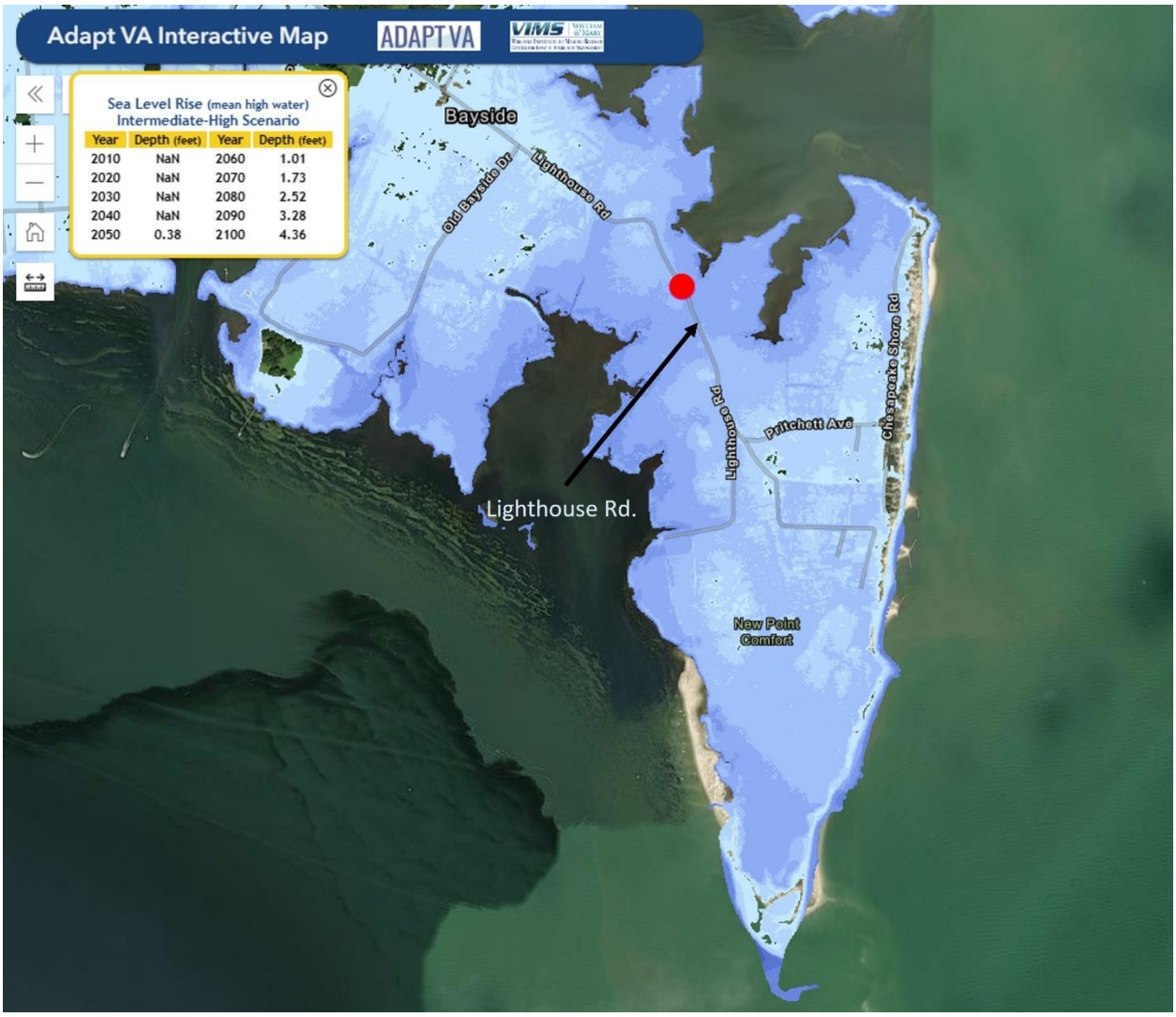


Figure 7. *2080 MHW Water Levels for the Intermediate-High Scenario. Lighthouse Road is labeled. (AdaptVA).*



Using the same location on Lighthouse Road and denoted by the red circle, MPPDC staff analyzed inundation of the road at four time horizons during the intermediate-high sea level rise scenario. In 2020 and 2040, the sea level depth is classified as "NaN" (not a number). By 2060, it is predicted that Lighthouse Rd will be inundated with 1.01 ft of salt water at MHW. Additionally, if 1.01 ft of salt water is present at MHW and considering that the tidal range in the area is 2.1 ft, this means that the road will be within 1.09 ft of flooding at MHW and that this section of road will have standing water for the majority of every day with the exception of the hours where the tide is lowest. Looking forward to 2080, it is predicted that 2.52 ft of sea level rise in the area. This is very close to the 3.70 ft of sea level rise needed to inundate the road at MLW. Given the small percentage difference and variation in calculation, the data suggests that at some time between 2060 and 2080, Lighthouse Road would be fully inundated at MLW and during all tidal cycles.

Using the data provided by the DCR and AdaptVA tools, the most likely two dates for when the model shift will occur during 2040 at MHW and sometime between 2060 and 2080 at MLW. This means at least twice a day, by the year 2040, at least one portion of Lighthouse Road will be under water and residents of the Bavon community will have to wait until low tide to navigate the road, drive through saltwater, or select another form of transportation (i.e., small watercraft) to reach their property or the mainland. This will be the start of the modal shift. Finally, by just after 2060 or sometime before the year 2080, Lighthouse Road will likely become inundated at MLW or at any given low tide meaning that Lighthouse Road will be under water at all tide cycles causing residents of the Bavon community to drive through saltwater or travel by boat.

- ***Pain Points –***

  Property Owner Perspective

  With the inundation of Lighthouse Road property owners within Bavon community will gradually lose safe and viable road access to and from their property due to inundation. Common activities such as going to the grocery store, school, doctors' appointments, and friend/family gatherings as well as access for emergency services will become increasingly challenging.

  While some of these homes are primary properties for families, there is a portion of the homes in this community that are owned and managed as second homes. It can be expected that pain points for second homeowners will be very different than the pain points experienced for primary homeowners within the community since second homeowners may not need to deal with road access issues as frequently.

  There are also many properties which have no development. The owners of the undeveloped property owners will experience different pain points than what is experienced by the primary and second homeowners. Some undeveloped property owners may only experience pain points related to their ability to develop the property in the future as challenges and costs associated with government regulations for development, taxes, and/or diminished value of the property on the real estate market negatively impacting the owner's ability to sell the property.

  Government Perspective

  With the inundation of Lighthouse Road government officials will need to consider investing in the elevation of this road or other mitigation solutions that would mitigate inundation on this road. Most likely, with limited funding available for such projects, local government will need to consider any policy changes that may reduce the risk to personnel if inspectors and/or emergency services need to access this portion of the County. What risks are they willing to take? For instance, driving a county owned car in salt-water if the road is inundated. How many times a month can this happen until it starts impacting the car? Or does the county invest in a boat to access such areas of the county?

Parcel Inundation Assessment

MPPDC staff continued the community assessment with focusing on the postage stamp parcels of Bavon community (**Figure 8**) and when, in a "do nothing" scenario, will the community become uninhabitable, meaning that parcels are inundated daily.

In the Bavon community, there are 228 individual parcels and of those 75 have constructed homes. This means that 153 parcels currently do not have homes constructed on them. It is also important to note that these undeveloped parcels may not be completely void of infrastructure especially with regards to septic systems as it is not uncommon for vacant parcels to have septic systems installed at the property. It is unknown exactly how many of the vacant parcels at Bavon have septic systems. Additionally, while actual counts on appurtenant structures and other infrastructure such as septic systems were not conducted for each Bavon parcel, it is important to note that many of the appurtenant structures, septic systems, etc. at the properties are of considerable value to property owners and play an important role in the decision-making process of property owners experiencing increased recurrent flooding and inundation such as those in Bavon. Finally, it is important to note that while the vulnerability of the Bavon community remains very high with regards to flooding, sea-level rise and erosion, the potential for additional development at this location remains high. This is especially true in the post-COVID era where many urban residents have sought to move to rural areas such as Mathews County. Therefore, while the current analysis is assuming a "no development" scenario for the future at Bavon, it is possible additional parcels could be developed despite the known risks, which if it were to occur, would further complicate the challenges described in this report for the Bavon community.

Figure 8. *Parcel map of the Bavon community. The yellow dots are "address points" within the community which refer to the location of homes.*

To begin, MPPDC staff needed an understanding of how the flooding throughout community changed between four flood time horizons, including 2020, 2040, 2060 and 2080. Using the DCR VA Coastal Resilience Web Explorer, **Figures 9-12** depict the sea level rise by each time horizon.

The DCR VA Coastal Resilience web explorer revealed where the Bavon community is currently and will continue to be impacted by sea level rise. The orange boxes on Figures 9-12 serve as a reference point for where there is still land above sea level throughout the community at MHW. The majority of the Bavon community homes on the Chesapeake Bay were built on a ridge which offers elevation; however, there are other homes located further inland on lower elevated land that have a greater potential for flooding and inundation at an earlier date than the homes on the ridge along the eastern side of the community.

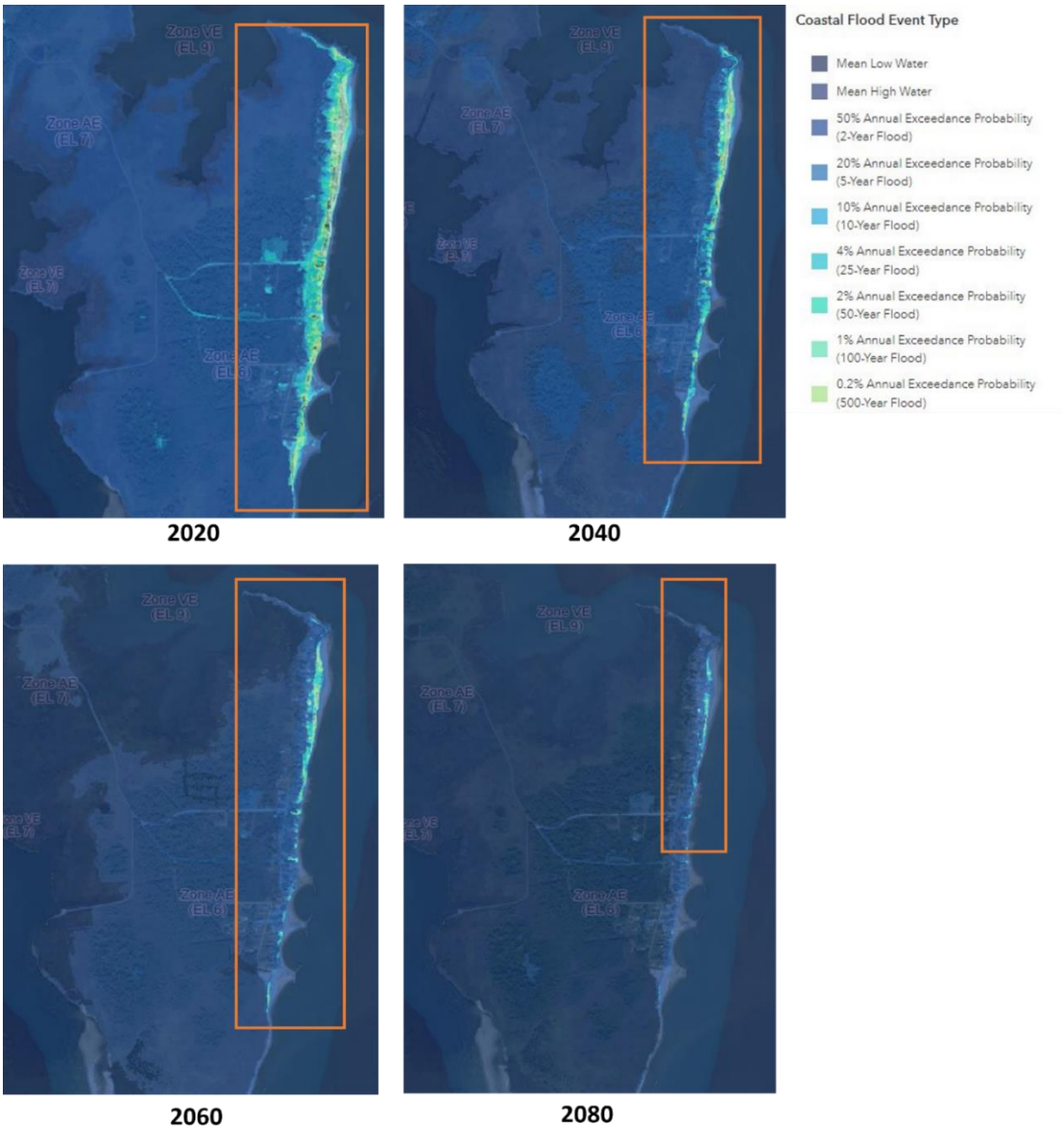
In 2020, the further inland properties experienced 50% annual exceedance probability of flooding at MHW which confirms what is currently experienced in those western areas of the community. The year 2040 shows no change compared to 2020, with inland properties continuing to experience 50% annual exceedance probability of flooding at MHW. The homes along the ridge on the eastern side of the community experiencing lesser vulnerability than the western side of the community. By the year 2060, many properties along the eastern side of the

community begin to experience 50% annual exceedance probability, while inland properties on the western side of the community experience partial to complete inundation at MHW. By 2080 virtually all the properties in the Bavon community will be affected by sea level rise. As the highest parts of the ridge will be above water, inland properties on the western side of the community will be fully inundated at MLW and properties on the eastern side of the community will be inundated at MHW.

While this DCR tool does not provide specific impacts on the built environment, it can be inferred that the threat to houses, appurtenances, and septic systems will increase in step with the conditions driven by elevated sea levels and increased flooding in the future.

It is important to note that these models do not factor in wave energy and erosion impacts that will occur with greater frequency and with greater impacts as sea levels rise. This is especially important for the easternmost Chesapeake Bay fronting properties which currently are battling erosion issues. It can be expected that the challenge and the associated costs to protect the high energy and dynamic shorelines along the eastern side of the community will only increase into the future, which will factor directly into the pain points for the eastern most property owners.

Figure 9. *Flooding of Bavon community dwellings during four flood time horizons (from DCR VA Coastal Resilience Master Plan web explorer).*



Probability Statistics along the Eastern Ridge area of Bavon

2020 Exposure: 1% Annual Exceedance Probability (100-Year Flood)
2040 Exposure: 10% Annual Exceedance Probability (10-Year Flood)
2060 Exposure: 50% Annual Exceedance Probability (2-Year Flood)
2080 Exposure: 50% Annual Exceedance Probability (2-Year Flood)

Probability Statistics on Inland Properties in the Western areas of Bavon

2020 Exposure: 50% Annual Exceedance Probability (2-Year Flood)
2040 Exposure: 50% Annual Exceedance Probability (2-Year Flood)
2060 Exposure: Mean High Water
2080 Exposure: Mean Low Water

Next MPPDC staff used the VIMS AdaptVA Interactive Map to find the height of water that will inundate yards in the Bavon community. MPPDC staff viewed the parcel lines on the map and analyzed the depth of water impacting inland and bayside properties during the same four time horizons for 2020, 2040, 2060, and 2080. **Figures 10 to 13** depict sea level rise maps from Adapt VA for each time horizon for inland properties and **Figures 14 to 17** depict sea level rise maps from Adapt VA for each time horizon for bayside properties.

MPPDC staff selected a sample location for inland properties. This is depicted as a red circle in **Figures 10-13**. In 2020 and 2040, the depth of water is categorized as "not a number." In 2060, the depth of water is ~0.12 ft and in 2080, the depth of water expected to be ~1.63 ft.

Figure 10. *Adapt VA Inland properties 2020 with parcel lines.*

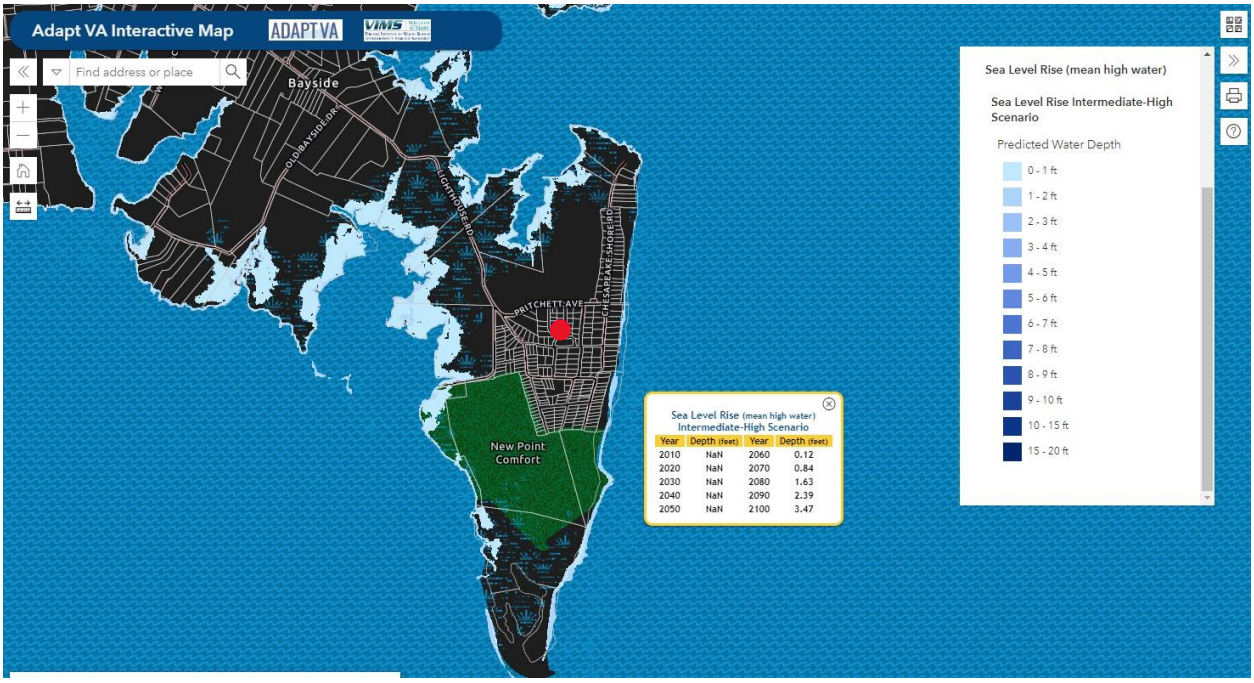


Figure 11. *Adapt VA Inland properties 2040 with parcel lines.*

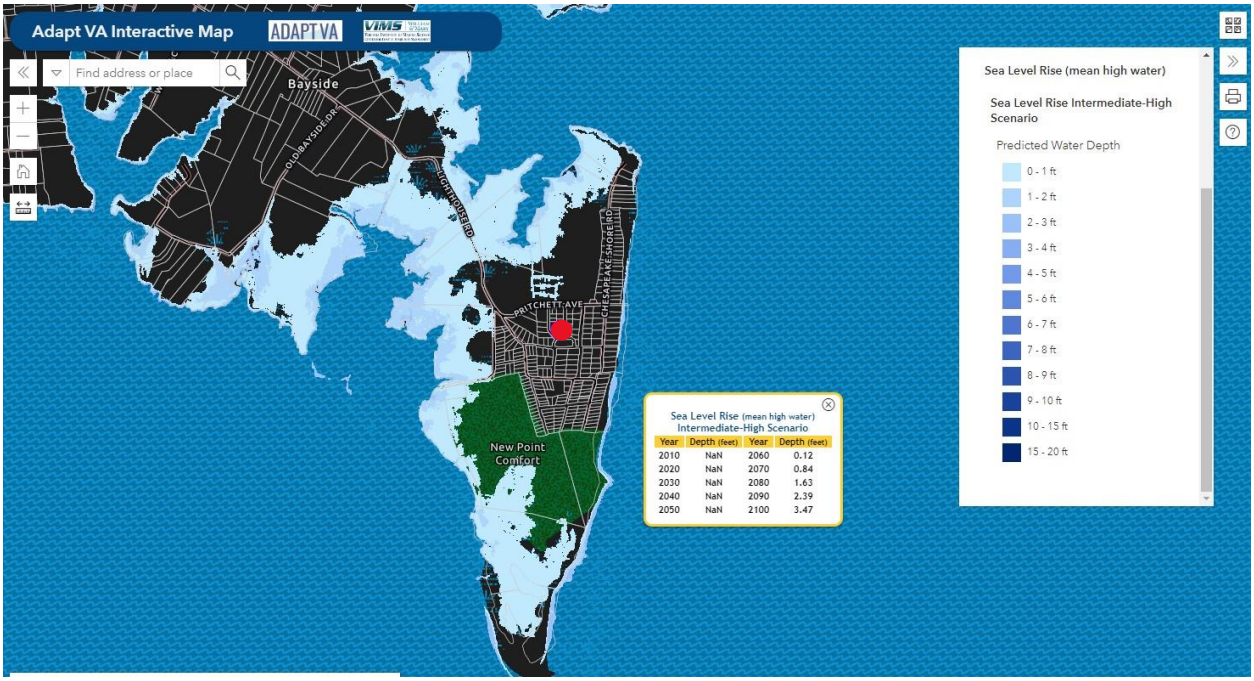


Figure 12. *Adapt VA Inland properties 2060 with parcel lines.*

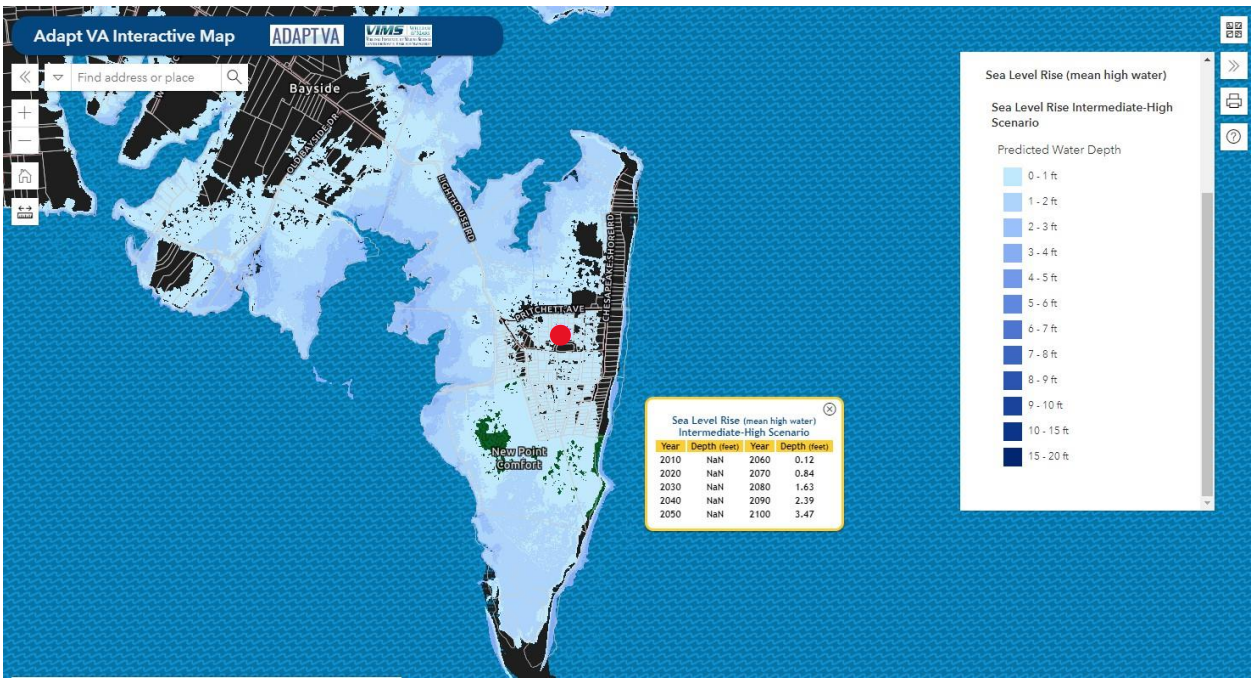
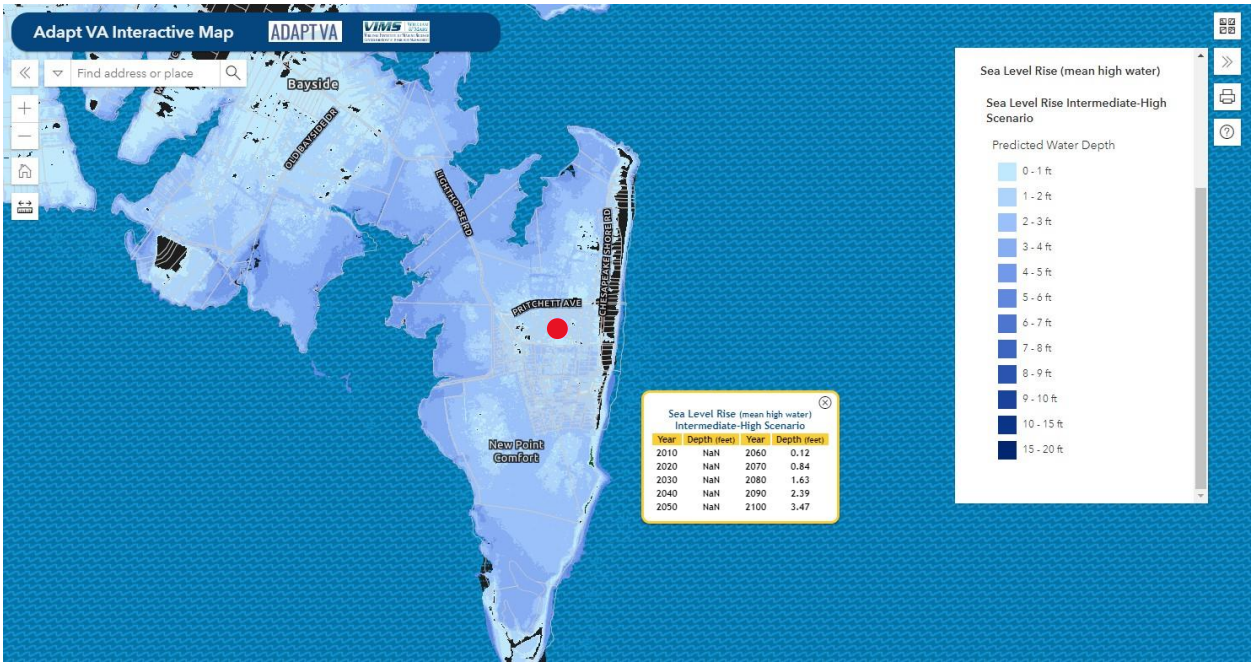


Figure 13. *Adapt VA Inland properties 2080 with parcel lines.*



For parcels on the bayside, MPPDC selected a sample location to find the depth of water that would inundate this area within a given year. In 2020, 2040, 2060, and 2080, the depth of water is categorized as "not a number."

Figure 14. *Adapt VA Bayside properties 2020 with parcel lines.*

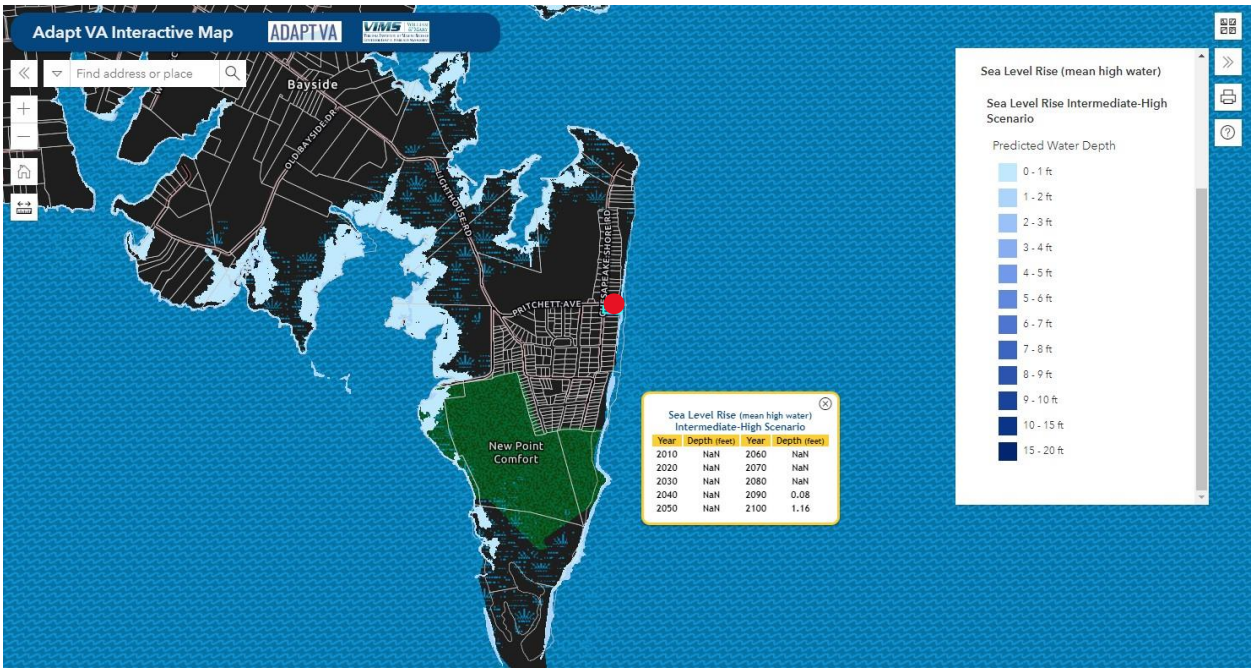


Figure 15. *Adapt VA Bayside properties 2040 with parcel lines.*

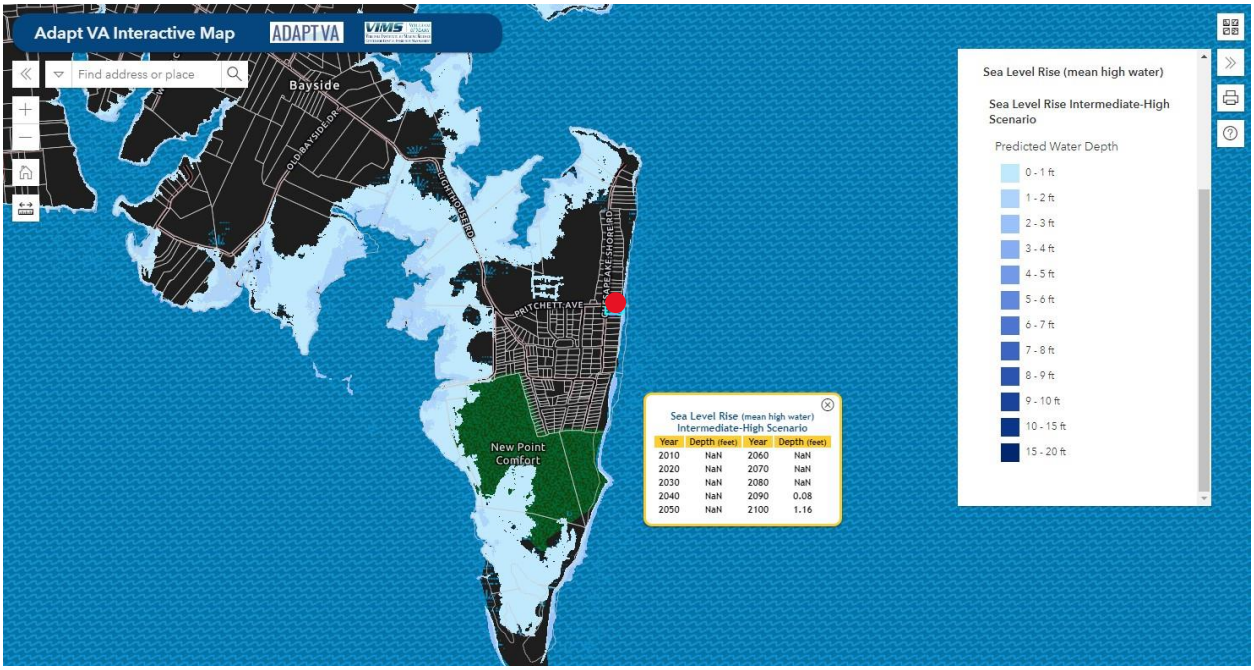


Figure 16. *Adapt VA Bayside properties 2060 with parcel lines.*

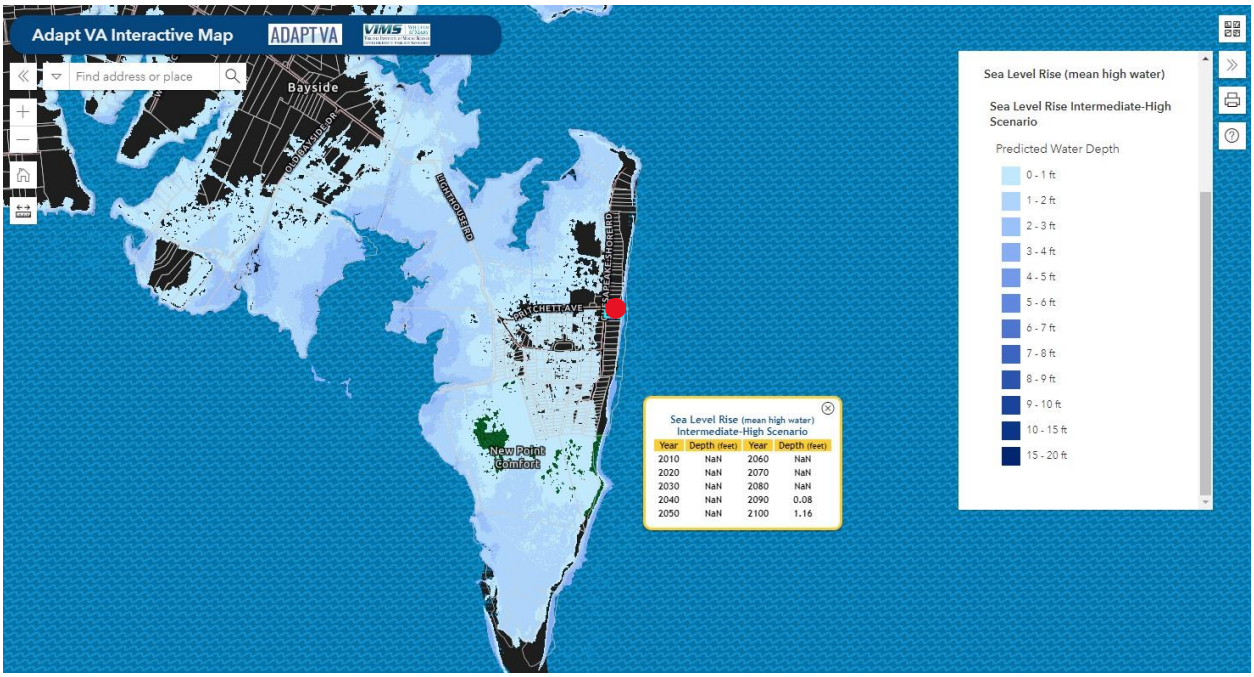
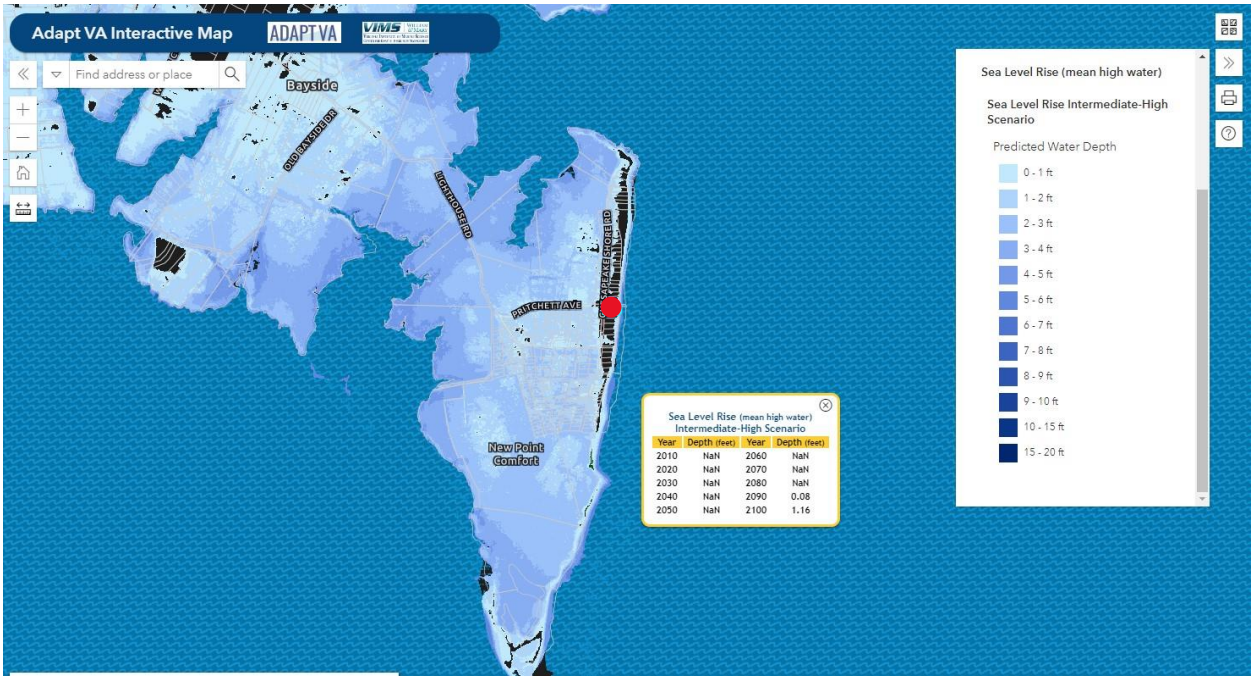


Figure 17. *Adapt VA Bayside properties 2080 with parcel lines.*



In 2020 and 2040 the model outputs shows no major flooding above MHW for the vast majority of Bavon parcels. By 2060, the western side of the community on undeveloped parcels including the New Point Comfort Natural Area Preserve and other low elevation and fringe marsh areas begin to become inundated at MHW. While the stillwater flooding depicted by this model appears to not flood the bayside properties of the community throughout the 2020-2060 time horizon at MHW, it should be noted that the flood risks related to storm surge and erosion will increase for these properties leading up to 2060. By 2080, the model shows ~1.63 ft of water at MHW will inundate most of the inland properties of the Bavon community at high tide. It can be expected that many of these areas will begin converting to tidal marsh under the "do-nothing" scenario which will all but negate any development potential these properties may have. Further, the roads within the community will begin to experience flooding during high tides which will create challenges for mobility within the community itself. The number of bayside properties experiencing flooding during high tide will also increase with the properties further south experiencing greater impacts than the properties in the central and northern areas along the bayside eastern ridge. Several of the bayside properties along the central and northern portions of the bayside eastern ridge will not experience flooding at high tide under stillwater conditions; however, many of the bayside properties are projected to experience ~0.3-0.5 ft of flooding with every high tide by the year 2080.

To analyze the impact of sea level rise throughout the Bavon community, MPPDC staff developed a map of the sub-categories of the Bavon community. The Bavon community was split up into four sub-categories: Central New Point, South Central New Point, Chesapeake Shore North, and Chesapeake Shore South (**Figure 18**). Central New Point and South-Central New Point consist of inland properties. Chesapeake Shore North and Chesapeake Shore South consist of the bayside properties along the ridge. All four sub-categories include parcels with

houses. MPPDC staff again utilized AdaptVA to collect the number of parcels within each sub-category of the community that experienced no inundation, partial inundation, or complete inundation were counted due to sea level rise (**Table 2**).

Figure 18. *Map of sub-categories of Bavon Community. The four sub-categories of interest include Central New Point, South Central New Point, Chesapeake Shore North, and Chesapeake Shore South.*

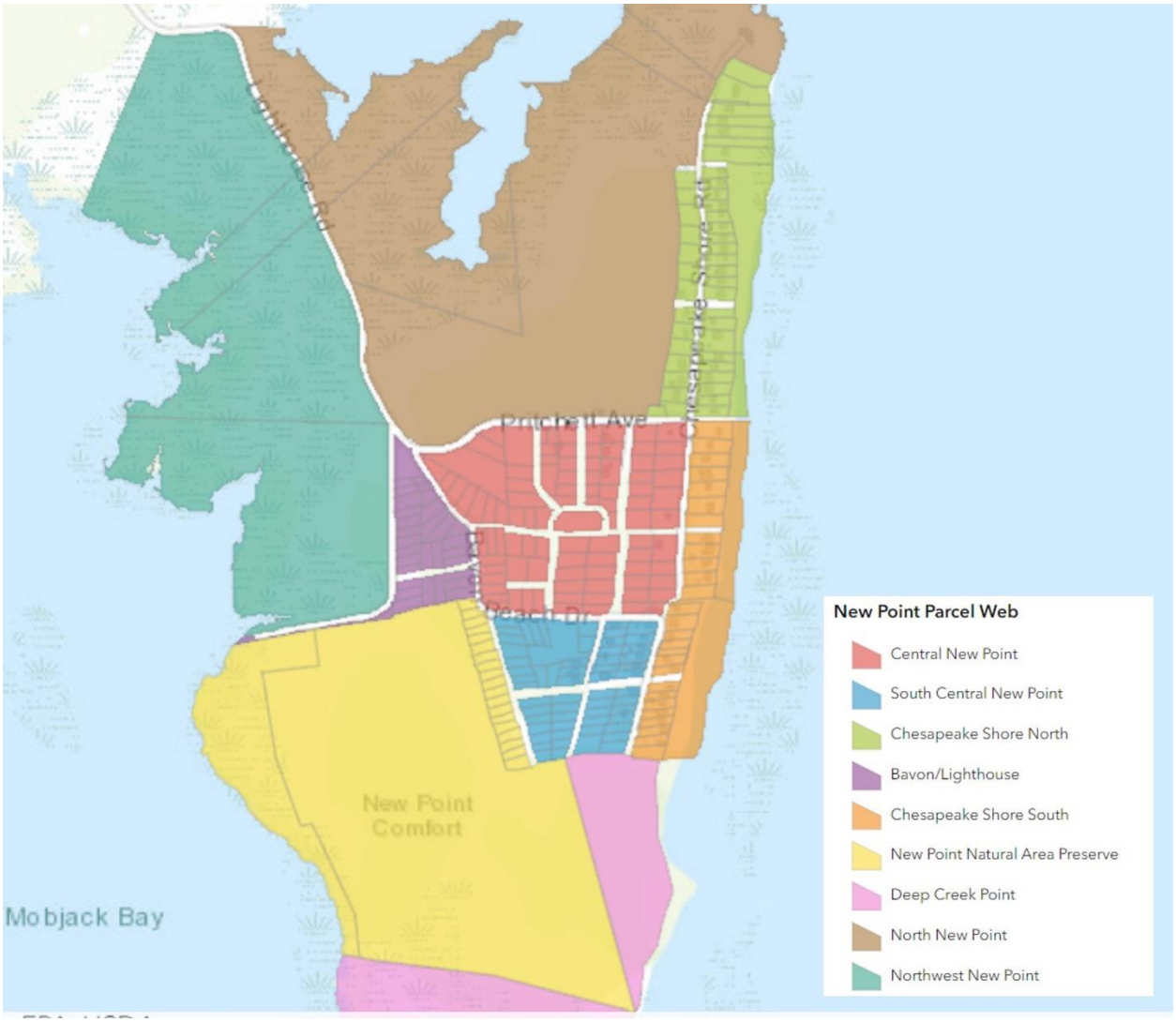


Table 2. *Inundation of Bavon community parcels at four time horizons.*

	Key			Number of parcels not inundated			Number of Parcels partially inundated			Number of Parcels completely inundated		
	INTERMEDIATE-HIGH SEA LEVEL RISE SCENARIO YEAR											
	2020			**2040**			**2060**			**2080**		
Chesapeake Bay North	45	0	0	41	4	0	23	16	6	0	35	10
Chesapeake Bay South	27	2	0	27	2	0	4	25	0	0	26	3
Central New Point	94	0	0	94	0	0	0	89	5	0	28	66
South Central New Point	60	0	0	60	0	0	0	60	0	0	0	60
Bavon Community	226	2	0	222	6	0	27	190	11	0	89	139

- **Pain Points**

  Property Owner Perspective

  When parcels in the Bavon community gradually become inundated, property owners will have a variety of decisions to make regarding the management and ownership of their property.

  For homeowners in the Bavon community inundation may result in loss of utilities. First septic tanks and drainfields will be inundated and will fail. Power may be lost and therefore air conditioning will not work. This could even trigger the growth of mold in such moist environments. Loss of power may also impact the functioning of wells. Additionally saltwater intrusion will impact the quality of water coming from wells and could corrode the mechanics of the well. The soil fails first as the soil turns to goo. The tanks and pipes still work as designed, but the soil is no longer dry enough to treat effluent. Additionally saltwater intrusion will impact the quality of water coming from wells, increasing salinity making the water no longer drinkable. Salt water could also corrode the mechanics of the well. With inundation, the house foundations could have standing water against the foundation and in the crawl space, further encouraging mold growth in the house.

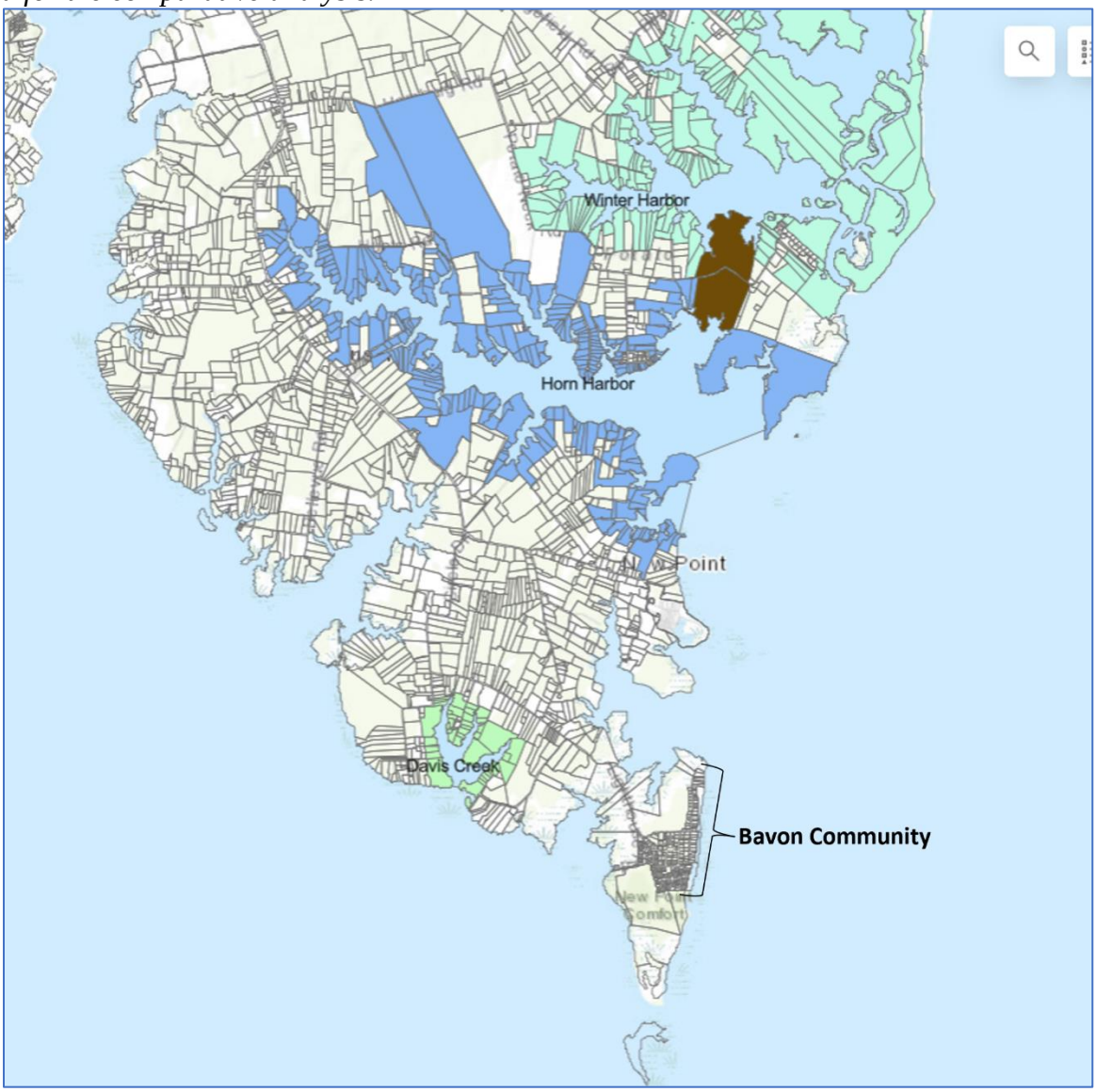
  Government Perspective

  How will inundated lands impact the residents and what is the government's role as water inundates their property and makes these properties inhabitable. What services can the local government continue to offer these residents and which services will need be terminated due to risk and safety concerns?

New Point Comparative Analysis

MPPDC staff conducted a comparative total land value assessment to show how land value is changing. Since there is no data for the New Point Bavon Community, MPPDC staff analyzed land value data from two communities – the Horn Harbor Community to the north of the Bavon Community and the Davis Creek to the west of Bavon Community (**Figure 19**).

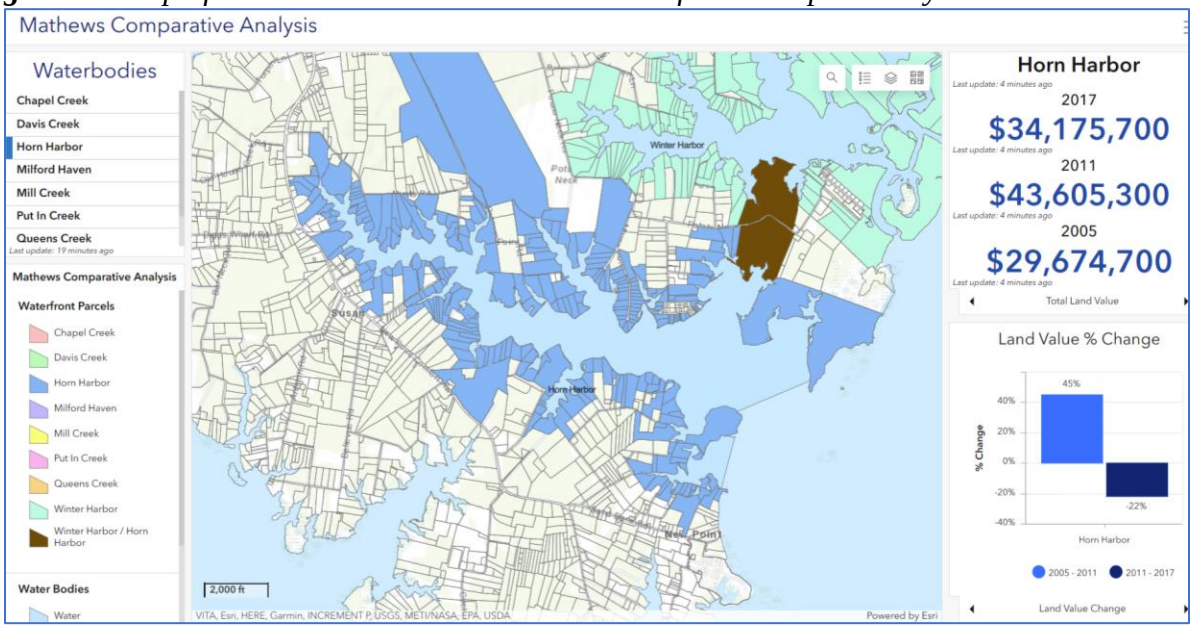
Figure 19: *Map of communities within Mathews County. Horn Harbor and Davis Creek were used for the comparative analysis.*



Horn Harbor is a community north of the Bavon Community. Based on the total land value data (**Figure 20**), between 2005 and 2011 there was an increase in total land value, with the land value jumping from $29,674,700 to $43,605,300. This was an increase of $13,930,600. Then

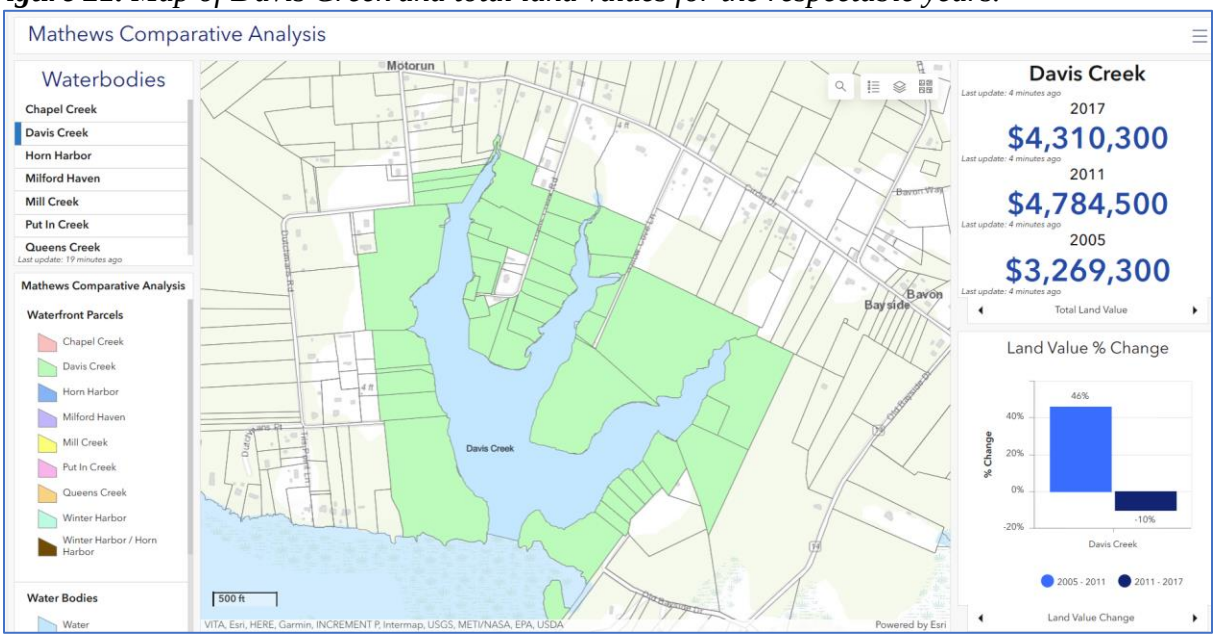
between 2011 and 2017 there was a decrease in total land value, with land value decreasing to $34,175,700 which was a 21.6249% decrease.

Figure 20. *Map of Horn Harbor and total land values for the respectable years.*



Davis Creek is a community west of the Bavon Community. Based on the total land value data (**Figure 21**), between 2005 and 2011 there was an increase in total land value, with the land value jumping from $3,269,300 to $4,784,500. This was an increase of $1,515,200. Then between 2011 and 2017 there was a decrease in total land value, with land value decreasing to $4,310,300 which was a 9.91117% decrease.

Figure 21. *Map of Davis Creek and total land values for the respectable years.*



Consequently, there appears to be one trend of increasing land values between 2005 and 2011, and then a decreasing of land value between 2011 and 2017. Since the land value change is consistent between the Horn Harbor and Davis Creek communities, MPPDC staff assumes that this will be the same for the Bavon Community.

- **Pain Points**

  Property Owner Perspective

  Property owners will need to address and strongly consider the individual economic burdens associated with owning a property in Bavon that will become inundated over time. Property owners will need to secure insurance to cover their assets, if available. If insurance is available, is it affordable? If insurance is not available, is it affordable to stay? Also, property owners will need to consider what it means for the land to be devalued as it becomes inundated. Also, will the ability to sell this property disappear and when?

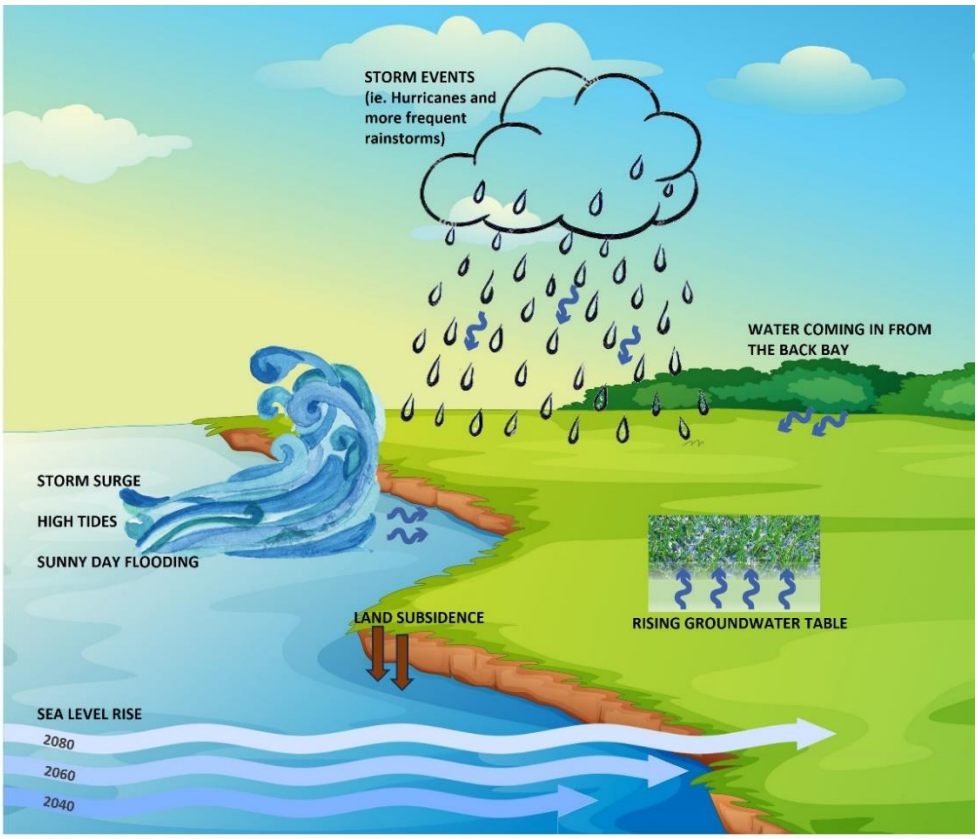
  Government Perspective

  As inundation of these properties devalues these homes, how will this impact tax revenue generation within the locality? How will the locality be able to recoup revenue losses? If local government does not adjust the levy, inland properties will be forces to cover the difference in lost revenue if waterfront parcels begin to devalue, making flooding a regressive tax structure.

Property Owner Decisions

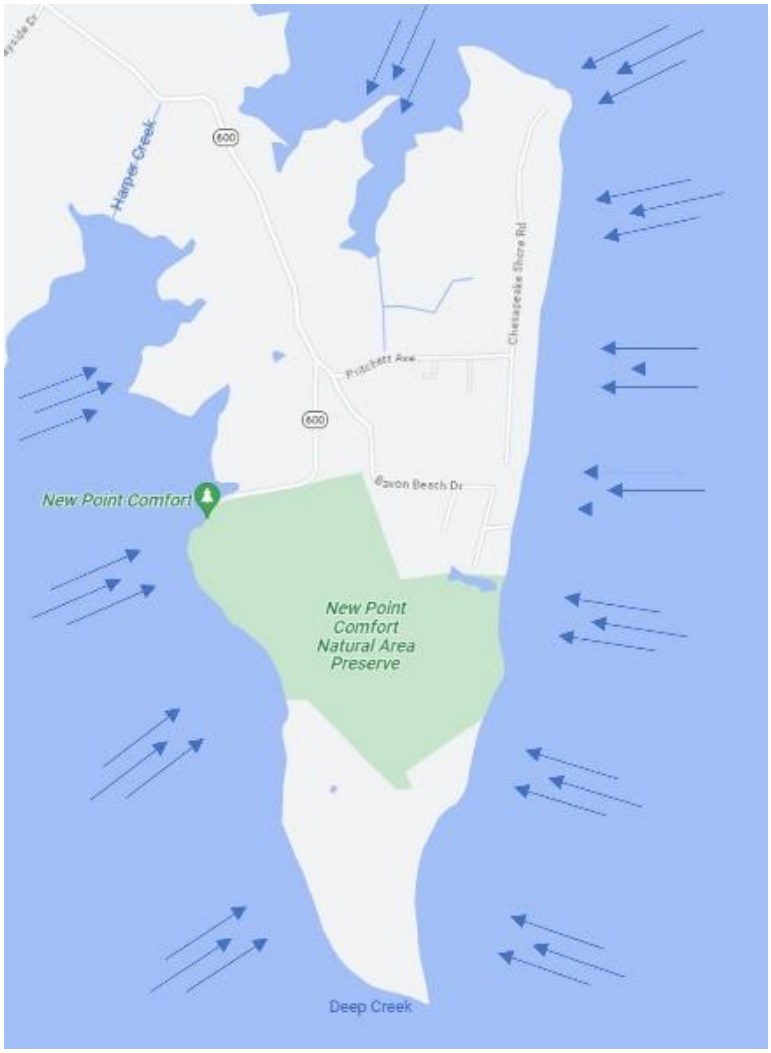
Inundation encompasses a variety of factors that impact coastal communities (**Figure 22**). From rising groundwater levels to storms to sea level rise, water is, and will continue, to inundate coastal communities from all directions.

Figure 22. *Factors that encompass inundation.*



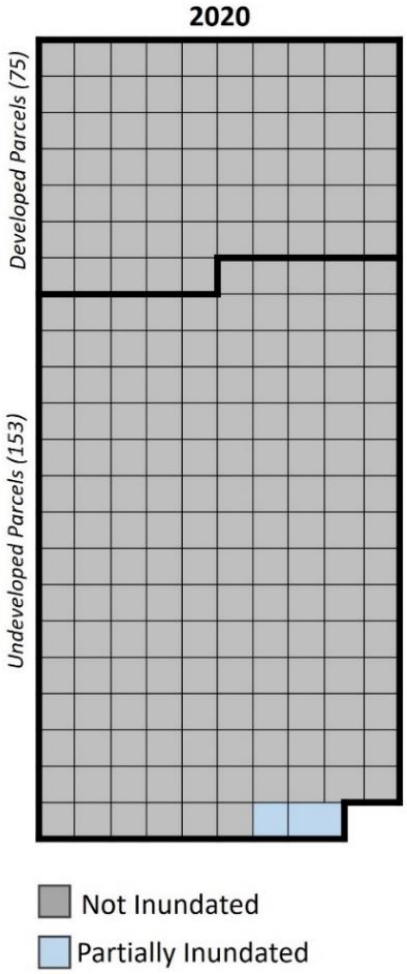
Inundation is a coastal cancer, that slowly eating away at land, and/or create waterlogged communities, which contributes to pain points for property owners, local governments, and local economies. At times many of these inundation factors exist simultaneously, which then exacerbates pain points even further. It's also important to note that property owners experience pain points well before inundation occurs on their property. For instance, the access road to the community may become flooded and impassable before inundation impacts one's property. Also, as the land subsides (at rates of 1.1 to 4.8 millimeters per year) and the groundwater levels rise then utilities such as drain fields and wells may become compromised prior into partial or complete inundation of the property.

Figure 23. *Map of Bavon Community. The blue arrows show that water is impacting the community from all directions.*



As the Bavon Community experiences all the factors that contribute to inundation and from all directions (**Figure 23**), the property owners within the community, have an option to mitigate, or not. This will ultimately be dependent on the amount of inundation present on the given property and the amount of investment that the property owner is willing to make. **Figures 24-27** provide a graphic depiction of all parcels within the Bavon Community. Each block represents one parcel. The gray blocks represent parcels that are not inundated within the given time frame. The light blue blocks represent parcels with partial inundation and the dark blue blocks represent parcels that are completely inundated. To the right, are lists of options for managing property in the face of rising waters on developed and undeveloped parcels. Please note that this analysis assumes the status quo and does not take into consideration policy and regulation changes that may occur to address coastal inundation issues and management of this land and governmental services. For a definition of options please see Appendix A.

Figure 24: *Property owner options by 2020.*



Developed Parcels

With no inundation in 2020, the 75 owners of developed parcels have options to mitigate for flooding or not. Each will make a separate and individual decision – resulting in at least 75 independent and potentially different decisions within the Bavon Community for developed parcels.

Options for developed parcels with no inundation include:

1. DO NOTHING
2. STRUCTURAL MITIGATION
   - Home elevation
   - Mitigation Reconstruction
   - Floodproofing
3. SHORELINE/LANDSCAPE MANAGEMENT
   - Living Shoreline
   - Breakwater
   - Berm
4. SELL PROPERTY
5. DONATE LAND

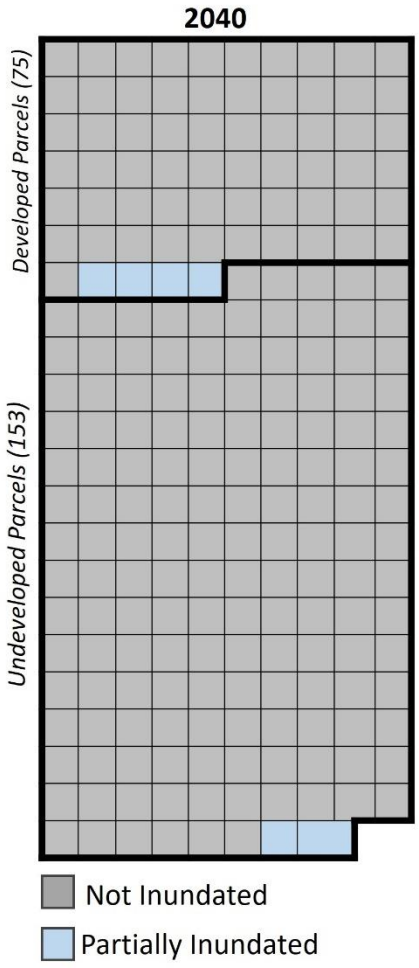
Undeveloped Parcels

With no inundation or partial inundation in 2020, the 151 owners of undeveloped parcels have options to mitigate for flooding or not. Each will make a separate and individual decision – resulting in at least 151 independent and different decisions within the Bavon Community for undeveloped parcels.

Options for undeveloped parcels with no inundation or partial flooding include:

1. DO NOTHING
2. DEVELOP PROPERTY
3. SHORELINE/LANDSCAPE MANAGEMENT
   - Living Shoreline
   - Breakwater
   - Berm
4. SELL PROPERTY
5. DONATE LAND

Figure 25: *Property owner options by 2040.*



Developed Parcels

With no inundation or partial flooding in 2040, the 75 owners of developed parcels have options to mitigate for flooding or not. Each will make a separate and individual decision – resulting in at least 75 independent and potentially different decisions within the Bavon Community for developed parcels.

Options for developed parcels with no and partial inundation include:

1. DO NOTHING
2. STRUCTURAL MITIGATION
   - Home elevation
   - Mitigation Reconstruction
   - Floodproofing
3. SHORELINE/LANDSCAPE MANAGEMENT
   - Living Shoreline
   - Breakwater
   - Berm
4. SELL PROPERTY
5. DONATE LAND

Note that while options may be the same for no inundation vs partial inundation the type of implementation of these options will be dependent on the amount of inundation.

Undeveloped Parcels

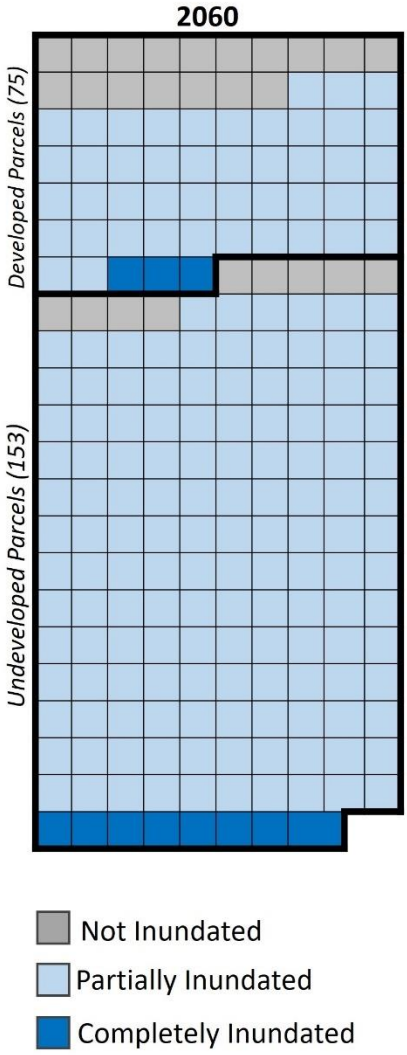
With no inundation or partial inundation in 2040, the 151 owners of undeveloped parcels have options to mitigate for flooding or not. Each will make a separate and individual decision – resulting in at least 151 independent and different decisions within the Bavon Community for undeveloped parcels.

Options for undeveloped parcels with no inundation or partial flooding include:

1. DO NOTHING
2. DEVELOP PROPERTY
3. SHORELINE/LANDSCAPE MANAGEMENT
   - Living Shoreline
   - Breakwater
   - Berm
4. SELL PROPERTY
5. DONATE LAND

Again, while options may be the same for no inundation vs partial inundation the type of implementation of these options will be dependent on the amount of inundation.

Figure 26: *Property owner options by 2060.*



Developed Parcels

With parcels that are not inundated, partially inundated, and fully inundated in 2060, the 75 owners of developed parcels have options to mitigate for flooding or not. Depending on the amount of inundation the be mitigation options will vary. Each will make a separate and individual decision – resulting in at least 75 independent and potentially different decisions within the Bavon Community for developed parcels.

Options for developed parcels with no inundation and partial inundation include:

1. DO NOTHING
2. STRUCTURAL MITIGATION
   - Home elevation
   - Mitigation Reconstruction
   - Floodproofing
3. SHORELINE/LANDSCAPE MANAGEMENT
   - Living Shoreline
   - Breakwater
   - Berm
4. SELL PROPERTY
5. DONATE LAND

Note that while options may be the same for no inundation vs partial inundation the type of implementation of these options will be dependent on the amount of inundation.

Undeveloped Parcels

With no inundation or partial inundation in 2020, the 151 owners of undeveloped parcels have options to mitigate for flooding or not. Each will make a separate and individual decision – resulting in at least 151 independent and different decisions within the Bavon Community for undeveloped parcels.

Options for undeveloped parcels with no or partial inundation include:

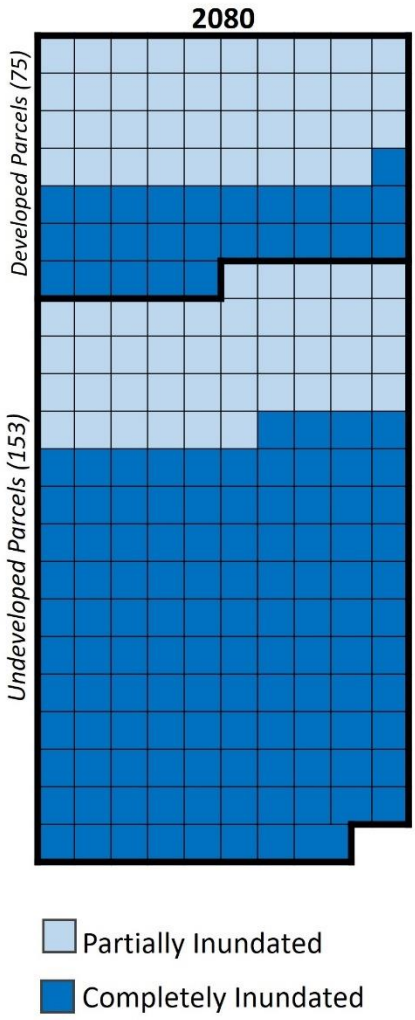
1. DO NOTHING
2. SHORELINE/LANDSCAPE MANAGEMENT
   - Living Shoreline
   - Breakwater
   - Berm
3. SELL PROPERTY
4. DONATE LAND

Note that while options may be the same for no inundation vs partial inundation the type of implementation of these options will be dependent on the amount of inundation.

Options for undeveloped parcels with complete inundation include:

1. DO NOTHING
2. SELL PROPERTY
3. DONATE LAND
4. ABANDON PROPERTY

Figure 27: *Property owner options by 2080.*



Developed Parcels

With partial and complete parcel flooding by 2080, the 75 owners of developed parcels have options to mitigate for flooding or not. Each will make a separate and individual decision – resulting in at least 75 independent and potentially different decisions within the Bavon Community for developed parcels.

Options for developed parcels with partial flooding include:

1. DO NOTHING
2. STRUCTURAL MITIGATION
   - Home elevation
   - Mitigation Reconstruction
   - Floodproofing
3. SHORELINE MANAGEMENT
   - Living Shoreline
   - Breakwater
   - Berm
4. SELL PROPERTY
5. DONATE LAND

Options for developed parcels with complete flooding include:

1. DO NOTHING
2. STRUCTURAL MITIGATION
   - Home elevation
3. SELL PROPERTY
4. DONATE LAND
5. ABANDON PROPERTY

Undeveloped Parcels

With no inundation or partial inundation in 2020, the 151 owners of undeveloped parcels have options to mitigate for flooding or not. Each will make a separate and individual decision – resulting in at least 151 independent and different decisions within the Bavon Community for undeveloped parcels.

Options for undeveloped parcels with complete flooding include:

1. DO NOTHING
2. SHORELINE/LANDSCAPE MANAGEMENT
   - Living Shoreline
   - Breakwater
   - Berm
3. SELL PROPERTY
4. DONATE LAND

Options for developed parcels with complete inundation include:

1. DO NOTHING
2. SELL PROPERTY
3. DONATE LAND
4. ABANDON PROPERTY

These diagrams above show potential chaos that may ensue, as there will be at least 228 independent and different decisions by property owners regarding would like to manage/protect their property at any given time to mitigate losses, or not. Additionally, if some of the undeveloped parcels owners decide to build on their properties this new construction could compound issues within the Bavon community. Permitting challenges will also arise as

environmental conditions change, but the reality is that the real estate value of those undeveloped lots will decrease as conditions worsen over coming decades and as the price lowers, it can attract more and more potential buyers looking to live near the beach no matter what the risk is and no matter for how short of a time their investment could last.

Conclusions

The slow demise is happening on the land in rural coastal Virginia is because of the threat of water. Rising water slowly kills businesses, land, and the way of life in coastal communities.

Responses to pain points due to inundation within coastal communities will be extremely complex, challenging and will involve many parties. MPPDC staff worked to develop methodology that recognizes that water has been coming and will continue to come and that private and government property owners must manage against this slow-motion threat or lose considerable economic and functional value of land and improvements.

MPPDC staff utilized the Bavon Community as a pilot community. Through the implementation of the methodology, it was found that there are critical aspects that may or may not influence property owner decisions:

1. **Access** to the Bavon community via Lighthouse Road -
    - ~2040 – Lighthouse Road will be inundated twice a day at MHHW.
    - ~2060 – Lighthouse Road will be inundated at MHHW and MLW.

2. **Inundated properties** -
    - Between 2020-2040 inland properties will experience 50% annual exceedance probability of flooding at MHW.
    - ~2080 virtually all the properties in the Bavon community will be affected by sea level rise. As the highest parts of the ridge will be above water, inland properties on the western side of the community will be fully inundated at MLW and properties on the eastern side of the community will be inundated at MHW.

3. **Land Value** - There is a drastic decrease in land value between 2011 and 2017.

Finally, dependent on the amount of inundation present on the given property and the amount of investment that the property owner is willing to make, there are a variety of alternatives/mitigation options to implement. Within the Bavon community there will be at least 228 independent and different decisions by property owners regarding would like to manage/protect their property at any given time to mitigate losses, or not.

This offers an overview of how inundation will impact coastal communities and some key aspects that property owners will need to address. Simultaneously, as private landowners are make decisions about their properties, government entities will be making decisions (i.e.. Creating policies, etc.) about their own serves which may also exacerbate the complexity of decisions that property owners need to make.

Loss of economic, environmental, and social capital constitutes a form of blight, including the loss of property values, economic stability, and quality of the environment. Drivers of blight can be slow, such as long-term decline in economic activity or depopulation, both of which are common in rural coastal locations. Rapid blight may also occur due to a sudden policy transition, or natural disasters such as flooding, erosion, or landslides. Therefore, communities like that of Bavon need to understand options to mitigate flooding and temporarily curb economic and social capital losses.

Appendix 1: Owner Alternatives

1. **DO NOTHING -** Do not take any actions.

2. **DEVELOP PROPERTY -** New construction on properties that are undeveloped.

3. **STRUCTURAL MITIGATION –**
    a. **STRUCTURE ELEVATION -** Structure elevation is the physical raising and/or retrofitting of an existing structure. Elevation may be achieved through a variety of methods, including elevating on continuous foundation walls; elevating on open foundations, such as piles, piers, posts or columns; elevating on fill; and second-story conversion.

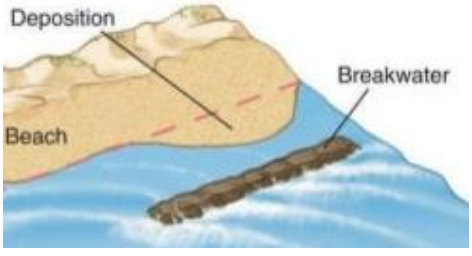
    b. **MITIGATION RECONSTRUCTION -** Mitigation reconstruction is the construction of an improved, elevated structure that conforms to the latest building codes on the same site where an existing structure and/or foundation has been partially or completely demolished or destroyed.

    c. **FLOODPROOFING -** Dry floodproofing techniques are applied to keep structures dry by sealing the structure to keep floodwaters out. Dry floodproofing projects are eligible for non-residential and historic residential structures under all HMA programs. Wet floodproofing consists of the use of flood-damage-resistant materials and construction techniques to minimize flood damage to areas below the flood protection level of a non-residential structure, which is intentionally allowed to flood. Wet floodproofing projects are eligible for non-residential structures under all HMA programs. Floodproofing may also include retrofitting.

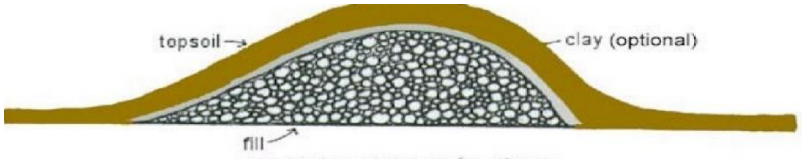
4. **SHORELINE/LANDSCAPE MANAGEMENT –** For coastal properties, shoreline management options are available, while inland property owners may opt for landscape improvements to mitigate flooding.

    a. **LIVING SHORELINES -** are nature-based approaches for shoreline protection. These stabilization techniques not only protect shorelines and infrastructure, they also conserve, create or restore natural shoreline habitats and ecosystem services.

    b. BREAKWATERS - a permanent structure constructed at a coastal area to protect against tides, currents, waves, and storm surges.



c. **BERMS** – a berm is mound of compacted early with sloping sides. Berms may service as a barrier to the flow of water, retaining flow and allowing infiltration, and directing the flow of water.



5. **SELL PROPERTY –** Sell property or seek a property by out by FEMA, or other agencies. Buyout may be an option as the value of properties decrease.

6. **LAND DONATION -** Donating land in the floodplain to a public or non-profit organization can become a community asset. The donated land may provide water supply protection, flood control, fish and wildlife habitat, recreation (hunting, fishing, hiking, wildlife watching, etc.), carbon sequestration, dilution of wastewater, and erosion control. Also, there may be benefits to the land donor. For example, if the land is donated to a public entity there may be deductions in your Federal and Virginia state income taxes.

7. **ABANDON PROPERTY –** Abandonment of properties might occur if no one wants to buy the property and when living conditions diminish due to inundation.