Virginia Department of Conservation and Recreation Virginia Community Flood Preparedness Fund – Round 3 Application Flood Prevention and Protection Project

Whiting Creek Comprehensive Resilience and Flood Protection Enhancements

Virginia Department of Conservation and Recreation Virginia Community Flood Preparedness Fund – Round 3 Application Flood Prevention and Protection Project

PROJECT TITLE: Whiting Creek Comprehensive Resilience and Flood Protection Enhancements

Name of Local Government: Middle Peninsula Planning District Commission

Category of Grant Being Applied for (check one):

_____Capacity Building/Planning __X__ Project ___Study

NFIP/DCR Community Identification Number (CID): Middlesex County (510098)

If a state or federally recognized Indian tribe, Name of tribe: NA

Name of Authorized Official: Lewis Lawrence, Executive Director

Signature of Authorized Official: _____

Mailing Address (1): PO Box 286
Mailing Address (2): 125 Bowden Street
City: Saluda **State:** VA **Zip:** 23149
Telephone Number: (804) 758-2311 Cell Phone Number: (____) _____
Email Address: llawrence@mppdc.com

Contact Person (If different from authorized official): Jackie Rickards
Mailing Address (1): PO Box 286
Mailing Address (2): 125 Bowden Street
City: Saluda **State:** VA **Zip:** 23149
Telephone Number: (804) 758-2311 **Cell Phone Number:** (215) 264-6451
Email Address: jrickards@mppdc.com

Is the proposal in this application intended to benefit a low-income geographic area as defined in the Part 1 Definitions? Yes __X__ No ___

Categories (select applicable project):

Project Grants (Check All that Apply)

□ **Acquisition of property (or interests therein) and/or structures for purposes of allowing floodwater inundation, strategic retreat of existing land uses from areas vulnerable to flooding; the conservation or enhancement of natural flood resilience resources; or**

acquisition of structures, provided the acquired property will be protected in perpetuity from further development.

□ **Wetland restoration.**

☑ **Floodplain restoration.**

□ **Construction of swales and settling ponds.**

☑ **Living shorelines and vegetated buffers.**

□ **Structural floodwalls, levees, berms, flood gates, structural conveyances.**

☑ **Storm water system upgrades.**

□ **Medium and large-scale Low Impact Development (LID) in urban areas.**

□ **Permanent conservation of undeveloped lands identified as having flood resilience value by Conserve Virginia Floodplain and Flooding Resilience layer or a similar data driven analytic tool.**

□ **Dam restoration or removal.**

□ **Stream bank restoration or stabilization.**

☑ **Restoration of floodplains to natural and beneficial function.**

□ **Developing flood warning and response systems, which may include gauge installation, to notify residents of potential emergency flooding events.**

Location of Project (Include Maps): Middlesex County

NFIP Community Identification Number (CID#) (See appendix F): 510098

Is Project Located in an NFIP Participating Community? ☑ Yes □ No Is Project Located in a

Special Flood Hazard Area? ☑ Yes □ No Flood Zone(s) (If Applicable): Zones AE and VE

Flood Insurance Rate Map Number(s) (If Applicable): 51119C0185E eff. 5/18/2015

Total Cost of Project: $174,312

Total Amount Requested: $113,303

SCOPE OF WORK NARRATIVE

INTRODUCTION

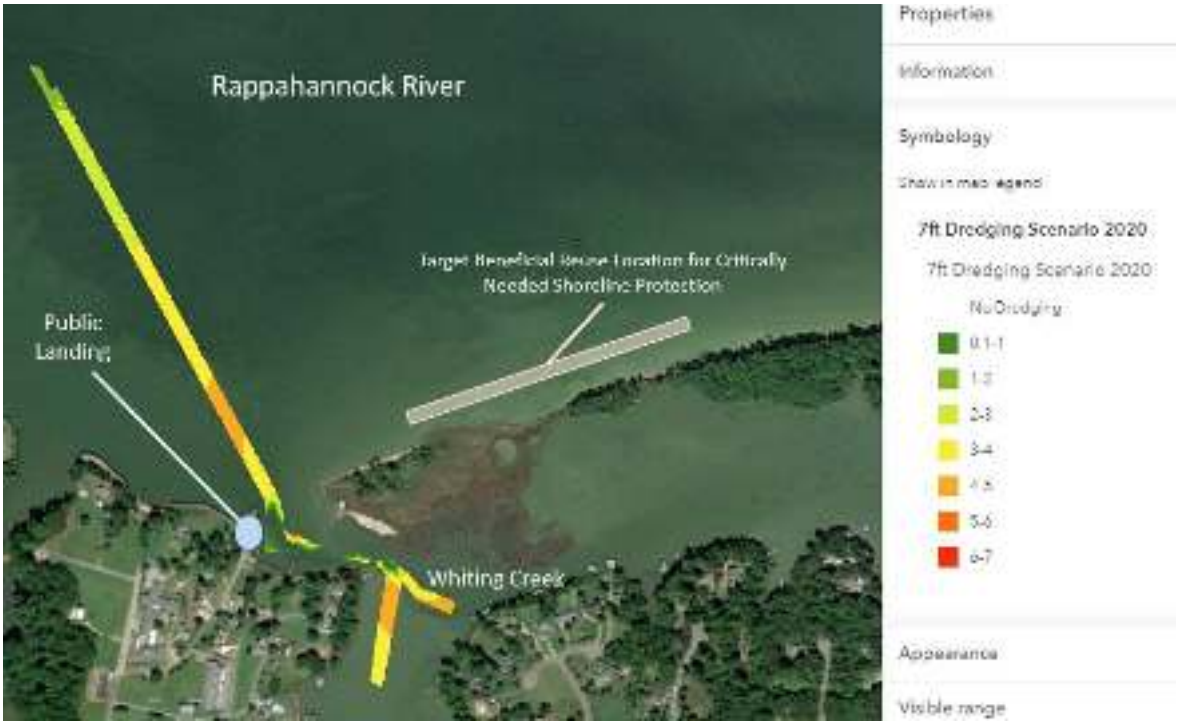
This proposal involves a multi-faceted approach to enhancing resilience and flood protection on Whiting Creek in Locust Hill, Virginia (Middlesex County). Whiting Creek and the publicly owned working waterfront on the creek serve as critical infrastructure for the commercial and recreational marine economies for Middlesex County and the Middle Peninsula. Whiting Creek has experienced extreme shoaling from flooding and climate change driven coastal dynamics to the point where public safety and commerce have been severely impacted. The public working waterfront has experienced similar flooding and erosion related challenges which are compromising the site's viability to serve as the important economic hub that it has been for decades. The proposal consists of two specific elements: 1) enhancing resilience and flood protection at the Whiting Creek Public Landing and 2) designing a dredging and beneficial reuse project for Whiting Creek. This project will utilize and incorporate sustainable planning, design, environmental management, and engineering practices that weave natural features together and allow for floodwater inundation and stormwater flow to reduce the exposure to public facilities while promoting adaptation and resilience. The final outcomes are intended to represent a holistic and comprehensive resilience solution for Whiting Creek and the public working waterfront.

Middlesex County wishes to achieve comprehensive resilience to critical public infrastructure within Whiting Creek, which is a highly vulnerable location adjacent to the Rappahannock River and Chesapeake Bay. To do this the County will complete a permitted and initiated bulkhead project and design a dredging and beneficial reuse project for Whiting Creek; the bulkhead project began after the January 4, 2022, opening of CFPF Round 3, and no project funds were spent prior to January 4, 2022. The bulkhead element of the project involves the construction and backfill 80 feet of vinyl sheet-pile bulkhead. This will extend a maximum of four feet channelward of mean low water into Whiting Creek and expand the public parking area and improve public access for commercial watermen and recreational users to the existing public boat ramp. The County's funds committed to this work will serve as match for the grant project per the DCR Grant Manual which states that "each application submitted must be for a discrete project to be completed after the beginning of the application period and not later than 3 years from the date of an executed agreement...". The Round 3 application period of the Community Flood Preparedness Fund opened on January 4, 2022, and therefore the County's funding will serve as eligible source of match for the proposed activities.

Additionally, the County will commission a study to investigate the shoaling of the boat ramp, shoreline erosion, and sedimentation within Whiting Creek, opportunities for dredging of Whiting Creek, and design for beneficial reuse of sediments. Whiting Creek is a Federally authorized channel which has not been dredged since 2003 as result of Congress defunding the US Army Corps of Engineers Shallow Draft Navigation Program. As result, the MPPDC has been working diligently and successfully to pursue alternative funding sources to address critical funding sources for channel maintenance including a 2020 project funded by the VA Port

Authority which characterized the regional dredging needs of the Middle Peninsula. For that study, Middlesex County identified Whiting Creek as a highest priority channel for which dredging and beneficial reuse solutions are needed. The proposed design will build on preliminary investigation of shoaling within the creek completed by MPPDC and the VIMS Shoreline Studies Program during the 2020 study which found that ~31,000 cubic yards of predominantly sandy material suitable for placement along shorelines for erosion protection needs to be dredged from the channel to achieve the desired 6 ft depth below mean lower low water (MLLW) and to include 1 ft overdepth dredging. The final design of the project will consider and select beneficial reuse opportunities for placing the dredged sand along adjacent shorelines where severe erosion has and continues to occur as well as beneficial reuse solutions for the boat ramp at the public landing (**Figure 1**). A narrow peninsula of land to the east of the mouth of Whiting Creek separates much of the Whiting Creek watershed from the Rappahannock River. This narrow piece of land is likely to erode to the point where a complete breach could occur in the near future or with the onset of a single severe storm event. If no

Figure 1. Project Location and Description



The project will involve resilience enhancements at a Publicly Owned Working Waterfront and Design of a Dredging and Beneficial Reuse Project. The image below shows the areas in need of dredging (VIMS, 2020) to attain the desired 6 ft MLLW depth with 1 ft overdepth dredging and highlights an adjacent shoreline in critical need of protection which is to be targeted for beneficial reuse. If this very thin peninsula breaches and a new inlet is created, the entire tidal dynamics of the watershed will be drastically changed and likely result in worsened shoaling within the mouth and inner segments of the creek.

action was to be taken to prevent erosion and breach of this area, the tidal dynamics of the creek would be greatly altered and have a severely negative impact on shoaling of the Whiting Creek navigation channel. The proposed beneficial reuse design will consider buffering the

shoreline via placement of dredged sand as well as designing nature-based shoreline protection structures, potentially by creating concrete structures on site using the dredged material itself as the media for the concrete. Similar methods for using concrete made from the dredged material will be explored for the boat ramp improvement design as well. The MPPDC currently is partnering with VA Sea Grant to host a RISE Resilience Business Competition to advance innovate private sector resilience solutions for rural coastal communities and one of the outcomes of this effort involves an innovative solution from a company associated with the Middle Peninsula Fight the Flood program where concrete structures may be created on site using dredged material and a 3-D printer capable of making structures of any shape and size up to 700 pounds. The end dredging and beneficial reuse design will be incorporated into a draft Joint Permit Application to achieve near shovel ready project status.

FEMA, the Virginia General Assembly, DCR's Floodplain Management Program, and the Middle Peninsula Planning District Commission (MPPDC) all recognize that natural hazards pose a serious risk to all levels of government including states, localities, tribes and territories and the citizens which reside and work there. These hazards include flooding, drought, hurricanes, landslides, wildfires and more. Because of climate change, many natural hazards are expected to become more frequent and more severe. Reducing the impacts these hazards have on lives, properties and the economy is a top priority for the Middle Peninsula PDC and the Middle Peninsula Fight the Flood (FTF) program (www.FightTheFloodVA.com). To that end, this proposal is a partnership between the MPPDC and Middlesex County (see Community Support Letter, **Attachment 1**).

- A link or copy to the approved MPPDC resilience plan: https://fightthefloodva.com/wp-content/uploads/2021/08/Approved-8_19_DCR-packet_letterandplan.pdf
- Middle Peninsula All Hazards Mitigation Plan (2016): https://www.mppdc.com/articles/reports/AHMP_2016_FEMA_Approved_RED.pdf
- Middlesex County Comprehensive
- Plan: https://www.co.middlesex.va.us/252/Comprehensive-Plan

This project is consistent with multiple objectives and strategies outlined within the Regional All-Hazards Mitigation Plan. Relevant strategies include the following:

- Objective 1.1: Provide protection for future development to the greatest extent possible.
    - Strategy 1.1.1: Reduce or eliminate flood damage to residential/business structures that are highly vulnerable for continual flood damage.
    - Strategy 1.1.3: Protect public buildings and public infrastructure from flood waters resulting from 100-year flood storm events.
    - Strategy 1.3.1: Mitigation projects that will result in protection of public or private property from natural hazards.

PROJECT INFORMATION

Project Description

Whiting Creek and the Whiting Creek Public Landing are public assets serve as critical infrastructure to aid in bolstering commercial and recreational marine economic activities for Middlesex County and the overall Middle Peninsula region. The project site is the **Whiting Creek Public Landing**, with waterfront access near the mouth of Whiting Creek in Middlesex County, Virginia. The approximately one-acre property consists of a public fishing pier, public boat ramp, beach access, and shoreline stabilization features. The parking area is a smooth paved surface but there are no designated parking spaces. The site can accommodate about six vehicles while allowing flow of traffic to the boat ramp. The dimensions of the area are 50 by 100 feet, which allows sufficient space for vehicles to maneuver and access the boat ramp.

The project involves the scope of the existing permitted and commenced project to construct and backfill 80 feet of vinyl sheet-pile bulkhead, extending a maximum of four feet channelward of mean low water into Whiting Creek, to expand the public parking area and improve public access to an existing boat ramp. It is significant to accommodate for these improvements as the landing and ramp are considered to be the primary uses of the site, according to the Middle Peninsula Public Access Master Plan.

A second phase will involve a study and dredging beneficial reuse project design and draft joint permit application. The design will target the shoaling of the boat ramp, shoreline erosion, and sedimentation within Whiting Creek and opportunities for dredging and beneficial reuse of dredged materials. A priority of the beneficial reuse refers to preventing the peninsula on the east side of the creek's mouth from breaching, changing the tidal dynamics, and exacerbating shoaling at the mouth of the creek (**Figure 1**). The study will be used to develop designs for identified solutions and to fund the implementation of physical solutions.

As noted in the Introduction, the overall scope of this project is to present a holistic approach to enhance resilience on Whiting Creek and the related working public waterfront (i.e., Public Landing). Whiting Creek has suffered from extreme shoaling caused by flooding and climate change-driven coastal dynamics, which in turn severely affects public safety and local commerce. The public waterfront has experienced similar flooding and erosion-related issues which compromises the viability of the site to serve as an economic hub for Middlesex County.

Project Location Information

The Middle Peninsula is the second of three large peninsulas on the western shore of Chesapeake Bay in Virginia, as seen in **Figure 2**. It lies between the Northern Neck and the Virginia Peninsula. The region is predominantly rural, with large, scattered farms and forested tracts; close-knit waterfront communities; an active regional arts association; broad-based civic involvement; and an excellent transportation infrastructure that provides easy access to urban markets. The area contains 3.2% of Virginia's land mass but only 1.1% of the Commonwealth's total population of approximately 93,000 as seen in **Figure 3**.

Figure 2. Middle Peninsula Geographic Area

Figure 3. Middle Peninsula Population

CID #	US Census 2020 Population	2020 Total
510048 (Tapp 510049)	Essex (Includes Town of Tappahannock)	10,599
510071	Gloucester	38,711
510082	King and Queen	6,608
510304 (West Point 510083)	King William (Includes Town of West Point)	17,810
510096	Mathews	8,533
510098 (Urbanna 510292)	Middlesex (Includes Town of Urbanna)	10,625
	MPPDC Total	**92,886**

Project implementation would take place along Whiting Creek in an area of Middlesex County, Virginia known as Locust Hill (**Figures 4 and 5**).

Figure 4. County Map of Project Location

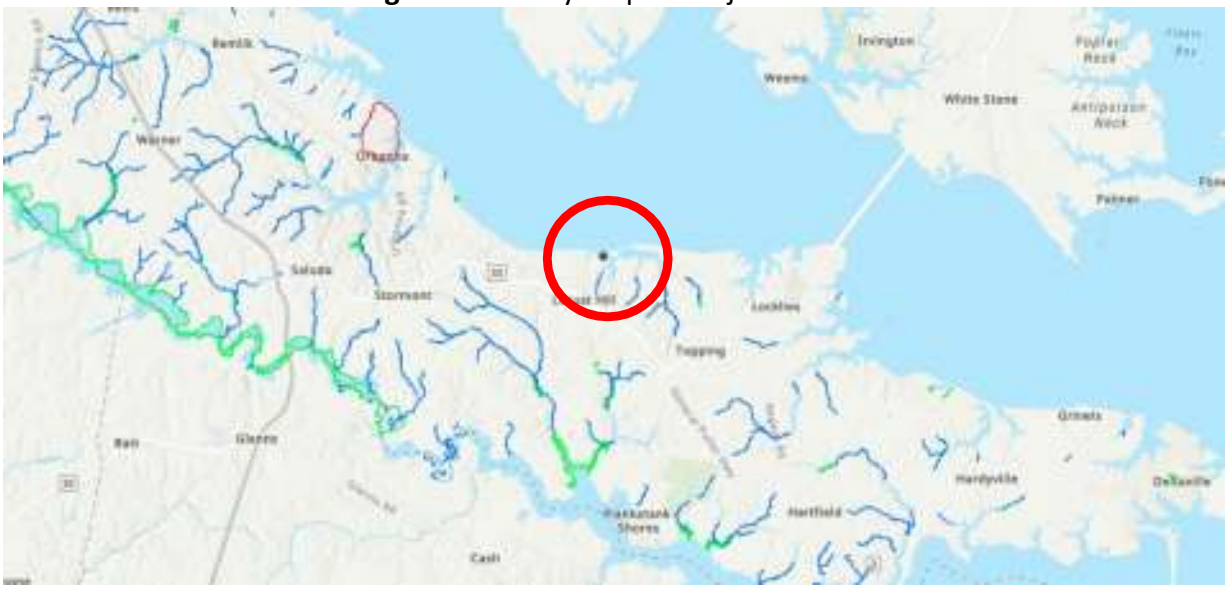


Figure 5. Parcel Map of Project Location

Population Information

Middlesex County is located in the central portion of Virginia's Middle along the Rappahannock River. Middlesex County has approximately 135 miles of shoreline. Based on 2020 Census Data, Middlesex County's population totals 10,625 (**Figure 2**).

According to DCR guidelines, the county is considered a low-income geographic area. In **Figure 6**, the green areas depict qualified low-income "community" areas meeting the 80% Household limits based on US census household income data[1] or are qualified Opportunity Zones.

Figure 6. Map of Middle Peninsula Low Income Qualifying Geographic Areas

Each county had its 'Eligible Household Income' calculated by multiplying the County's median Household Income by .8. This resulted in the following numbers:

	Essex	Middlesex	Mathews	King William	King & Queen	Gloucester
Median household income (in 2019 dollars), 2015-2019	$51,954	$57,438	$64,237	$66,987	$63,982	$70,537
Eligible Household Income	$41,563	$45,950	$51,389	$53,590	$51,186	$56,430

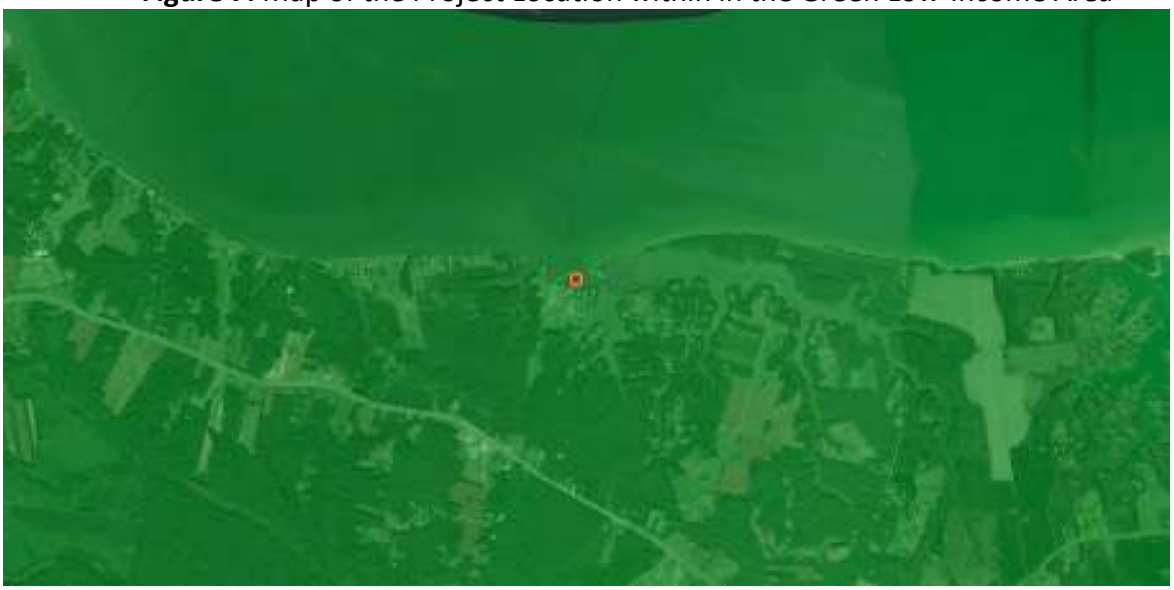
Note: Per 7/15/2021 DCR Webinar, comparing state Household income to locality is permissible to determine if the entire locality is LMI.

The following is an overview of the Regional Eligibility map. Green areas are qualified low-income "community" areas meeting the 80% Household limits based on US census household income data or are qualified Opportunity Zones.

Please see **Figure 7** for a detailed map of the project location and the green low-income area overlay. This shows that the project location is within the low-income area.

[1] Based upon 2015-2019 U.S. Census American Community Survey data available on January 4, 2022, when CFPF Round 3 opened; 2016-2020 ACS data was not released until March 17, 2022.

Figure 7. Map of the Project Location within in the Green Low-Income Area



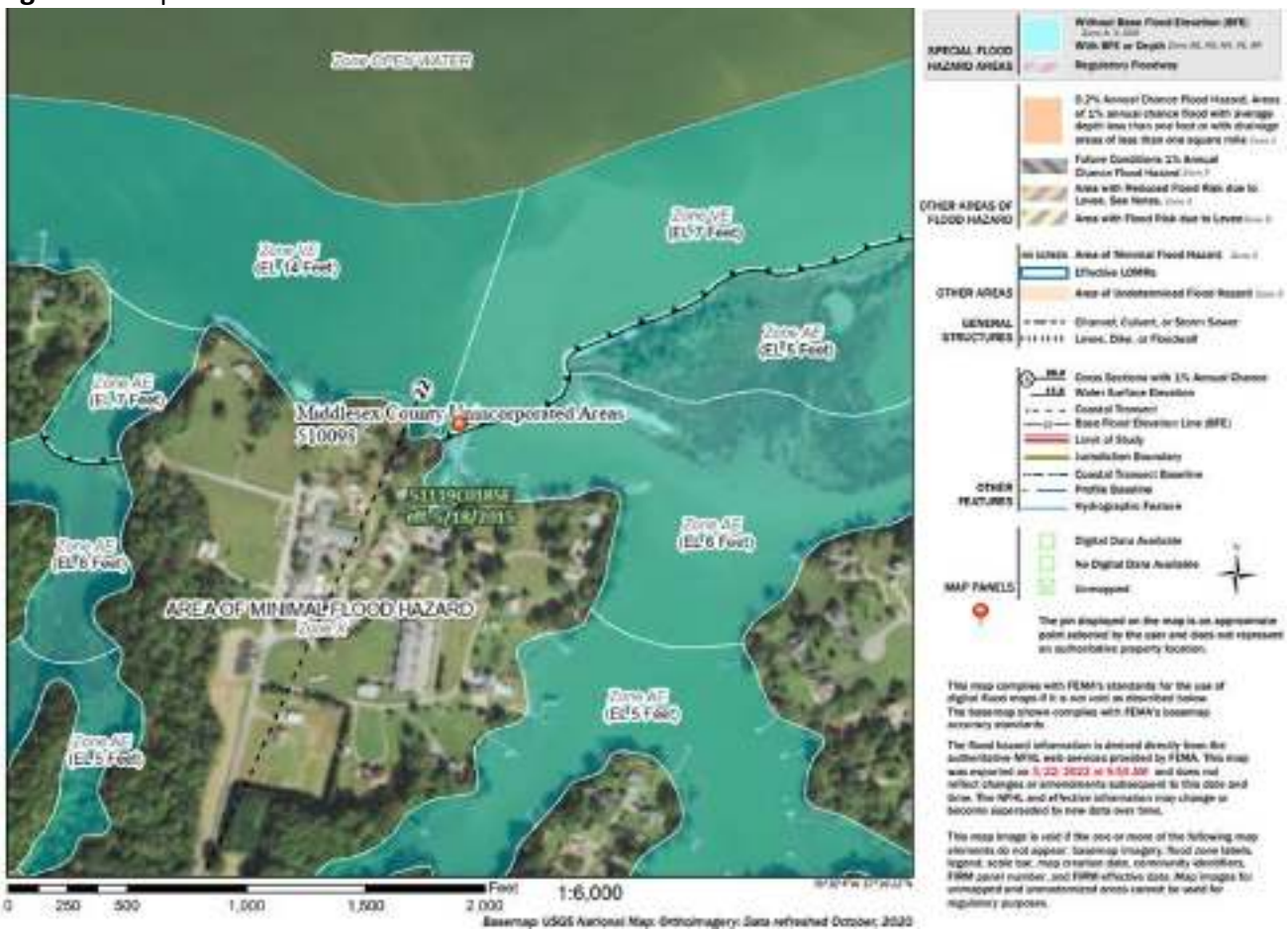
With respect to social vulnerability, according to ADAPTVA's Social Vulnerability Index Score, this project location has a Social Vulnerability Index Score of 0.2, classified as Moderate Social Vulnerability (**Figure 8)**

Figure 8. ADAPTVA Social Vulnerability Index Score Viewer

Flood Risk Information

The entirety of the site (898 Marsh Pungo Road, Locust Hill, VA 23092, 37.61005, - 76.50619) is located within a mapped floodplain, with portions located within FEMA Flood Zones AE and VE (**Figure 9**). Middlesex County's Planning and Zoning Department administers the requirements of the NFIP program, and the County's Floodplain Management Ordinance may be accessed at the following link: [https://www.co.middlesex.va.us/DocumentCenter/View/422/Floodplain-Management- PDF?bidId=](https://www.co.middlesex.va.us/DocumentCenter/View/422/Floodplain-Management-PDF?bidId=)

Figure 9. Map of FEMA Flood Zones



Due to the project site's proximity to the water and low elevation, the site has an extensive history of experiencing extreme weather events that have resulted in significant impacts to infrastructure and the environment. For example, the project location has long been, and continues to be, impacted by tropical, sub-tropical, and Nor'easter events (**Attachment 3**). According to NOAA's Coastal Flood Mapper, this project location is at the highest risk of coastal flooding (**Figure 10**). Collectively, these reoccurring and storm-related events have contributed to erosion and shoreline loss at site.

Figure 10. Map of Project Location and Risk of Coastal Flooding (NOAA, 2021)

NEED FOR ASSISTANCE

The Middle Peninsula Planning District Commission (MPPDC) is a political subdivision of the Commonwealth of Virginia formed under VA Code §15.2-4203 to provide solutions to problems of greater than local significance and cost-savings through economies of scale. The MPPDC serves nine localities of the Middle Peninsula including Essex, Gloucester, King & Queen, King William, Mathews, and Middlesex counties, as well as the Towns of Tappahannock, West Point, and Urbanna.

MPPDC is staffed using multiple methods including co-operative procurement, hourly, and burdened FTE staff. MPPDC staff consists of an Executive Director, Deputy Director, Chief Financial Officer, Senior Project Planner, and clerical support staff; a Director of Planning, General Planner, Certified Flood Plain Manager, Transportation Planner, and Emergency Planner are co-operative procured; Housing, Community Development Planner and Public Relations staff are hourly.

The Planning District staffing team assists localities with long-term and/or regional planning efforts. The MPPDC Executive Director, Deputy Director, and Chief Financial Officer have decades of experience in managing and administering project grants at multiple scales - from grants in excess of $1,000,000 to small grants. MPPDC is an entrepreneurial-based government agency with an annual operating budget ranging from $750,000 to more than $1,000,000. Annually, the MPPDC manages 25-30 concurrent federal and state grants utilizing industry standard Grants Management Software and other software (e.g., GIS, Microsoft Office) as required and/or necessitated by different grants. The MPPDC operates service centers in the topical areas of coastal zone management, emergency planning, housing, transportation planning and transportation demand management, economic development, social assistance, small business development, general planning and technical assistance, as well as other areas

determined by the Commission. MPPDC has more than 25 years of experience managing multiple revolving loan programs. In the 25 years that the Executive Director has been employed by the Commission, no audit findings have occurred.

Whiting Creek is a key access point for recreational and commercial seafood fishing as well as access to water and beach fronts. And as noted above, the site is currently constrained, and current improvements will serve to improve access and use of the site. The site's boat ramp is subject to shoaling, and there is shoreline erosion, compounded by other site conditions contributing to sedimentation within Whiting Creek. The objectives of these improvements are meant to align with the Middlesex Public Access Plan, completed in recent years, by allowing for a public use of access points with a private residential section to coexist with properly delineated boundaries indicated by signage, fencing, and other structures.

Existing site conditions (**Figure 11**) serve to limit usability of the landing, a key access point to the Rappahannock River, thereby negatively impacting recreation and commercial seafood activities. According to the Middle Peninsula Dredging Implementation Plan, Whiting Creek requires dredging in order to "establish navigable depths to provide safe navigation for commercial and recreational vessels". Therefore, studying and completing a dredge design for the materials from the creek bed and ensuring beneficial reuse of the sediments will increase access for boats and commercial interests into Whiting Creek.

Additionally, as the study and implementation of a shoreline solution will reduce erosion of the property this will reduce flood risks at the project site. Without the erosion protection measures proposed, the land, habitat and public infrastructure will continue to be compromised, resulting in degradation of the environment and loss of public assets. Stormwater resilience remains the biggest weakness of the Whiting Creek Landing site. The area around the Whiting Creek Landing site is prone to erosion from weather events as evidenced by neighboring living shoreline and shoreline protection features. Any category of storm surge will hit the Whiting Creek site, depositing sediment in the creek eroding the shoreline, precluding access. Moreover, rising sea levels will have a negative impact on the property, increasing the potential for shoreline erosion and loss of public assets.

Finally, it is important to note that Whiting Creek is a Condemned Shellfish Area; this applies to bivalve molluscan shellfish since they may concentrate bacteria and viruses from the water, and this designation would benefit from water quality improvements offered by advancing dredging of the creek and shoreline and stormwater best management practices.

Figure 11. Photos of Existing Site Conditions.

Whiting Creek Boat Ramp to be targeted for improvement in the proposed beneficial reuse design.

Shoreline protection improvements, initiated after the Jan. 4, 2022 opening of CFPF Round 3; photo taken March 1, 2022

Eroded shoreline at project site from fishing pier prior to improvements. Note commercial fishing boat and active use by recreational and commercial boaters.

Shoreline protection improvements, initiated after the Jan. 4, 2022, opening of CFPF Round 3; photo taken March 1, 2022

Figure 12 illustrates flood levels combined with sea-level rise and their effects on the site. Notably, floods in 50 years pose an issue to the many structures on site; key construction techniques will need to be employed to retrofit each structure in order to mitigate the effects of exceptional floods and sea level rise 50 years and out.

Figure 12. Sea Level and Flood Elevation

Sea Level for 2020

Sea Level Projection for 2080

The need for assistance is two-fold. **First, Middlesex County is near the Chesapeake Bay and numerous tidal rivers that contribute to the area's high risk to coastal flooding, sea-level rise, and storm surge.** Based on tidal gauge data from the Virginia Institute of Marine Science (VIMS), relative sea-level rise rates ranging from 0.11-0.23 in./yr. (2.9-5.8 mm/yr.; period: 1976-2007; 10 stations) within the Chesapeake Bay region, which are the highest rates reported along the U.S. Atlantic coast (Boon et. al., 2010). In addition to sea-level rise, Middlesex County has a history of being impacted by hurricanes and tropical storms. As storms pass over or near the coast, the atmospheric pressure drops, causing a large volume of sea water to build up, eventually being pushed ashore by the storm's winds as storm surge. When a storm makes landfall at high tide, the storm surge and the added water from the tidal fluctuation combine to create a "storm tide".

Nor'easters, like hurricanes and tropical storms, can dump heavy amounts of rain and sediment, and produce hurricane-force winds that push large amounts of seawater inland. A strong indicator that Middlesex County is experiencing the impact of coastal hazards (i.e., flooding, hurricanes, sea-level rise, and storm surge) is the number of repetitive loss and severe repetitive loss claims submitted by residents and businesses to FEMA. As of 2015, Middlesex County had 429 repetitive loss properties with claims topping $44 Million. The county has implemented several preventative measures, property protection policies, public information activities, and emergency service measures to decrease impacts on its communities. This project will therefore build on local efforts moving toward a more resilient community.

Second, this project location is primed for co-benefits derived from shoreline erosion mitigation efforts.

The proposed application of shoreline protection features, boat ramp improvements, and a Whiting Creek dredge design provides strategic protection of the infrastructure and landscape at this point of interest. For example, the proposed improvements will facilitate multiple, simultaneous activities that will contribute to economic growth in the area while fostering innovation.

Business Development

The potential of increased tourism drawn to the recreational site is significant. Visitors seeking access to local waterways could be drawn to activities available at Whiting Creek Landing, supporting the local economy with outside revenue in their pursuits. The project proposes and includes a newly constructed bulkhead, study to investigate the shoaling of the boat ramp, shoreline erosion, and sedimentation within Whiting Creek, and study and design for dredging Whiting Creek with beneficial reuse of sediments. Close proximity to recreational opportunities has increasingly become a factor in where businesses decide to locate. The provision of a public access site with enhanced amenities thus has the potential to drive continued economic growth through business development in the area. Moreover, the site is inventoried in the Middle Peninsula's Working Waterfront Inventory, and the boat ramps and fishing pier provide key access to the waterways for commercial seafood fishing industries.

Community Scale Benefits

Due to the multitude of public investment for shoreline protection and flood research and innovation, we believe this site meets the test of "Priority shall be given to projects that implement community-scale hazard mitigation activities that use nature-based solutions to reduce flood risk." The Whiting Creek Landing site serves as one of the Commonwealth's best chances to innovate shoreline resilience projects in "live time" so that all of coastal Virginia can benefit. MPPDC believes that proposing resilience projects at the parcel scale and where possible, partnering with neighbors can accomplish more in terms of linear shoreline protected than urban areas which have smaller sized parcels.

Further, the Whiting Creek Public Landing Site is an important access point in Middlesex County, to both the Rappahannock River and Chesapeake Bay, as acknowledged by the Middle Peninsula Public Access Master Plan and Middlesex County Public Access Site Assessment Report; however, use of the site in limited due to lack of parking, and access and usability are potentially limited by a need for dredging.

ALTERNATIVES

The submission of alternatives is not applicable in this application. Nature-based and hybrid solutions are anticipated, and the project cost is less than $3 million.

GOALS AND OBJECTIVES

This proposal will develop a comprehensive strategy to increase resilience of the site against multiple shoreline erosion inputs while providing co-benefits that foster resilience at the Whiting Creek Landing. The focused goals and objects of the project are as follows:

Goal 1: Improve public access to local coastal waterways.

- Objective A: Increase public access to Whiting Creek and the Rappahannock River with improved conditions and mitigation of recurrent and repetitive flooding using a nature-based approach on site.
- Objective B: Enhance quality of life for local residents and visitors alike through recreation, educational and cultural opportunities, and commercial fishing at the point of interest.
- Objective C: Leverage improved public access and coastal resiliency for economic growth within Middlesex County.

Goal 2: Improve coastal resiliency within the community and the Commonwealth.

- Objective A: Mitigate recurrent and repetitive flooding alongside storm surge and sea level rise using natural and nature-based solutions that benefit people and the economy as well as the environment.
- Objective B: Prevent loss of life and reduce property damage by mitigating for recurrent, repetitive, and future flooding within the project area using a nature- based design approach.
- Objective C: Enhance the resilience of public infrastructure, ensuring longer-term viability.

Goal 3: Transferability to other communities.

- Objective A: Model natural and nature-based solutions for coastal sites exploring development potential.
- Objective B: Foster innovative research and solutions-oriented studies on site focused on coastal adaptation and mitigation for external transfer.
- Objective C: Improve the implementation of Fight the Flood as a model program to be replicated in other communities within the region and/or Commonwealth.

The MPPDC expects the following results and benefits of the completed project:

1. **Foster economic growth in the area over the useful life of site infrastructure and most likely, beyond. at the project location**. Enabling public access to this county asset while ensuring its sustainability will protect and enhance the area's recreational economies and has the potential to positively impact related commercial endeavors.

2. **Prevent loss of property without cementing an alternative.** Building resilient structures and facilities at the project site as outlined will help prevent loss of property and property value, while capitalizing on the useful life of the site as much as possible.

   The proposed project was confirmed for the MPPDC by Matthew C. Burnette PG, PH, CFM

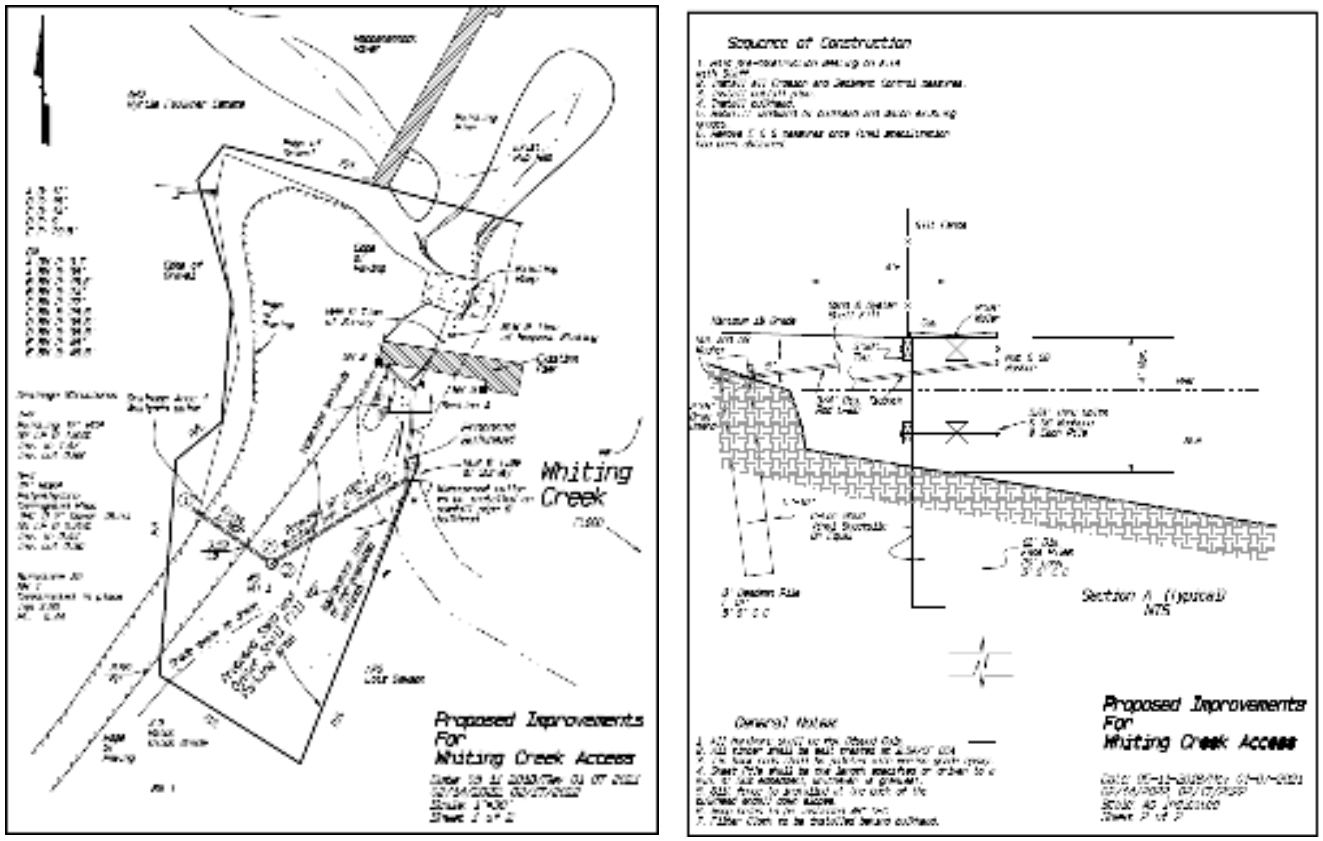
or Holly White AICP, CFM.

3. **Provide ecosystem services to the community toward increased quality of life.** Increased public access to support recreational and economic opportunities leverage the provisioning and services associated with the site's natural resources, services that provide benefits to and increase the quality of life of users.

APPROACH, MILESTONES, AND DELIVERABLES

The project involves the scope of the existing permitted and initiated project (after January 4, 2022) to construct and backfill 80 feet of vinyl sheet-pile bulkhead, extending a maximum of four feet channelward of mean low water into Whiting Creek, to expand the public parking area and improve public access to an existing boat ramp (see **Figure 13)** for project plans and scope of work). A second phase will involve a study of the site to investigate the shoaling of the boat ramp, shoreline erosion, and sedimentation within Whiting Creek and opportunities for dredging and beneficial reuse of dredged materials. The study will be used to develop designs for identified solutions and to fund the implementation of physical solutions.

Figure 13. Permitted Site Plans for Shoreline and Parking Improvements at the Whiting Creek Landing



Scope of Work
The Contractor shall provide all labor, materials, equipment and services necessary to complete the work described as follows: **Bulkhead Installation and Parking Improvements at Whitings Creek, Middlesex Co., VA , and as specified in the Bid Form for Bulkhead Installation and Parking Requirements at Whitings Creek, Middlesex County, Virginia, which is attached hereto and incorporated by reference.** The work shall be completed Prior to June 30, 2022. Any change in this time frame will require written approval of the owner.

Contract Price
As full compensation for performance by Contractor of the Work, Owner shall pay Contractor the lump sum price of **Seventy Thousand Three Hundred Ninety Two Dollars ($70,392.00).** Any changes in price shall require written approval of Owner.

Progress Payments
Contractor shall submit to the Owner a monthly application for payment no later than the 25th day of the calendar month for preceding thirty (30) days. Payment applications shall include payment requests on account of properly authorized Change Orders. Owner shall pay the amount otherwise due on any payment application no later than twenty (20) days after Contractor has submitted a complete and accurate payment application.

Virginia Department of Wildlife Resources owns the public boat ramp, while the County manages the site. The project will occur within the regulatory floodplain identified as the AE and VE Zones.

Concerning Adverse Impacts

Additionally, the applicant and the property owner recognize the importance to do no harm to land owned by the Commonwealth nor the adjacent property owners as result of the construction elements of this project. The design for the proposed project will be developed and constructed under the auspices of experienced contractors who understand that adverse impacts must be avoided and considered in the design and implementation of the project. The proposed project will work with the permitting agency, designers, and contractors to ensure that the project is built to and functions at the level of the design specifications to ensure that no adverse impacts will occur.

The principal tasks and milestones are as follows:

- Construction and backfill of bulkhead, expansion of parking area and improvement of access to existing ramp (funded by Middlesex County. This portion of the project serves as matching for the other proposed activities);
- Site study to investigate shoaling of boat ramp, shoreline erosion, and sedimentation within Whiting Creek; and
- Study of dredging opportunities and design of beneficial reuse of dredged materials.

The expected timeline for the project milestones, and deliverables, is as follows:

<u>Year 1/Months 1-12 - Bulkhead Construction; Site Evaluation & Study</u>

- Months 1-6: Bulkhead construction and completion (initiated during Spring 2022 after the

January 4, 2022 Round 3 start date and to be completed prior to June 30, 2022). Initiate necessary channel characterization surveys (bathymetric, LiDAR, sediment grain size and chemical sampling, as necessary) with VIMS Shoreline Studies Program or other Virginia academic institution.

- Months 6-12: Finalize dredging and beneficial reuse project design plans and develop draft Joint Permit Application

RELATIONSHIP TO OTHER PROJECTS

While the specific proposed project bears no direct relationship to specific past, future, or future resilience projects, the project does relate to larger regional resilience efforts. For more than 40 years, the Middle Peninsula Planning District Commission (MPPDC) and its participating localities have worked diligently on topics associated with the land water interface, including coastal use conflicts and policies, sea level rise, stormwater flooding, roadside ditch flooding, erosion, living shorelines, coastal storm hazards (e.g., hurricanes, tropical storms), riverine and coastal flooding, and coastal resiliency.

The proposed project is a priority project generated from the Middle Peninsula Regional Flood Resilience Plan, which was approved by DCR in August of 2021. This Flood Resiliency Plan serves as the MPPDC's guiding document for its flood resiliency programs and is comprised of two primary MPPDC-approved policy documents. These documents frame the foundation and implementation of the Middle Peninsula flood protection approach and are indirectly and directly supported by specific regional planning documents each approved by federal, regional, and/or local partners as required by statute.

Other plans and resources integral to the implementation of the Flood Resiliency Plan include:

Long Term Planning

- Middle Peninsula All Hazard Mitigation Plan - FEMA and Middle Peninsula locality, approved 2016 (MPPDC Website)
    - This overarching project provides updates every five years on the hazards within the region; it identifies the top hazards within the region and provides a HAZUS assessment that analyzes flooding (riverine and coastal), sea-level rise and hurricane storm surge impacts in the region. Additionally, this plan lists strategies and objectives that guide member localities to mitigate for these strategies.
- Middle Peninsula Comprehensive Economic Development Strategy – MPPDC, approved March 2021
- Middle Peninsula VDOT Rural Long Range Transportation Plan – MPPDC, approved annually

Short Term Implementation

- Middle Peninsula Planning District Commission Fight the Flood Program Design - MPPDC Commission, approved June 2020; Chairman approved update 8/6/21
- Middle Peninsula Planning District Commission Living Shoreline Resiliency Incentive Funding Program - Virginia Revolving Loan Fund Program Design and Guidelines, approved 2015

The MPPDC has a history of continuous work on flooding and coastal resiliency topics, as described in **Attachment 5**. These projects have built upon each other to establish within the MPPDC a solid foundation of regional expertise in flooding and coastal resiliency. Now, given this history of accumulated information and knowledge, the MPPDC can move beyond research and studies to begin implementing projects on the ground. One such effort, launched in 2020 following the Commission's authorization, was developed in response to emerging flood challenges. This effort, the **Middle Peninsula Fight the Flood (FTF) Program**, leverages state and federal funding to deliver flood mitigation solutions directly to constituents, for both the built and natural environments with an emphasis on nature-based flood mitigation solutions. The Middle Peninsula **FTF** program helps property owners gain access to programs and services to better manage challenges posed by flood water. MPPDC staff have partnered with private property owners registered for the FTF program to assist them in finding funding for their shoreline.

Finally, the Flood Resiliency Plan and associated programs strive to carry out the guiding principles and goals set forth in the Virginia Coastal Resilience Master Planning Framework established in 2020. The proposed activities are proposed in accordance with the guiding principles and with the intent that their outcomes will help the Commonwealth meet the goals set forth in the planning framework.

MAINTENANCE PLAN

A maintenance plan is not applicable in this application. The proposed project is to develop a nature-based design solution and its cost does not require ongoing operation and future maintenance.

CRITERIA

*Describe how the project meets each of the applicable scoring criteria contained in **Appendix B** and provide the required documentation where necessary. Documentation can be incorporated into the Scope of Work Narrative or included as attachments to the application. **Appendix B** must be completed and submitted with the application.*

For local governments that are not towns, cities, or counties, the documentation provided for the criteria below should be based on the local government or local governments in which the project is located and/or directly impacts.

1. **Is the applicant a local government (including counties, cities, towns, municipal corporations, authorities, districts, commissions, or political subdivisions created by the General Assembly or pursuant to the Constitution or laws of the Commonwealth, or any combination of these or a recognized state or federal Indian tribe?**
   - Yes; the applicant is a regional planning district commission.

2. **Does the local government have an approved resilience plan meeting the criteria as**

established by this grant manual? Has it been attached or a link provided?

- Yes; the MPPDC's DCR-approved resilience plan may be accessed at the following link: https://fightthefloodva.com/wp- content/uploads/2021/08/Approved-8_19_DCR-packet_letterandplan.pdf

3. **For local governments that are not towns, cities, or counties, have letters of support been provided from affected local governments?**
   - Yes; please see **Attachment 1**

4. **Has the applicant provided evidence of an ability to provide the required match funds?**
   - Yes; please see the match commitment letter in **Attachment 1**

5. **Has the applicant demonstrated to the extent possible, the positive impacts of the project or study on prevention of flooding?**
   - Yes

BUDGET NARRATIVE

ESTIMATED TOTAL PROJECT COST

Based upon the identified scope of work, the estimated total project cost is $174,312. This total estimate is based upon the following estimated cost breakdowns:

- Shoreline Protection and Parking Improvements Construction: $70,392
- Dredging and Beneficial Reuse Design and Draft JPA Development: $70,000

MPPDC staff will manage and administer this project. Thus, personnel time is needed to ensure that project deliverables are completed within the project timeline. Along with personnel expenses, MPPDC fringe is needed. This includes health insurance, retirement, group life insurance, workman's comp, and unemployment insurance. MPPDC fringe rate for FY23 is 26.21% and comprised of: Health Insurance – 48.58%, Retirement – 18.06%, Workers Comp – 0.28%, Social Security – 28.55%, Life Insurance – 4.39%, Unemployment – 0.14%. Direct charges are costs associated with overall projects costs consistent with general accounting principles. MPPDC also prepares an indirect cost (IDC) plan annually per 2 CFR 200 Appendix VII. Following annual audit, the plan is submitted to NOAA for acceptance. MPPDC's IDC rate has a basis of Modified Total Direct Costs (MTDC), with a planned rate of 27.92%. IDC is only applied to the first $25,000 of each contract. IDC calculated on MTDC (modified total direct cost)-Personnel, supplies, travel, and first $25,000 of each subcontract, etc.; excludes equipment.

Whiting Creek Comprehensive Reisilience Enhancements							
Budget Narrative (Category D)							Budget (Cat. D)
					Applicant 1		
Personnel Salaries/Wages	DCR %	Match %	Annual Salary		DCR	Owner	Total
Staff	0.00%	0.00%	$0		$10,846	$5,840	$16,686
Personnel	Lesle's Cheat Sheet		DCR	Owner	$10,846	$5,840	$16,686
		Total	65%	35%			
FT Fringe, 26.21% salaries;		$140,392	91,254.80	49,137.20	$2,843	$1,531	$4,374
	15%	21,058.80	13,688.22	7,370.58			
Total Personnel		161,450.80	104,943.02	56,507.78	$13,689	$7,371	$21,060
SubAward/SubContract Agreements					65%	35%	
Shoreline Protection and Parking Improvements				$70,392	$21,255	$49,137	$70,392
Dredging and Beneficial Reuse Design and Draft IPA				$70,000	$70,000	$0	$70,000
				$0	$0	$0	$0
				$0	$0	$0	$0
				$0	$0	$0	$0
				$0	$0	$0	$0
				$0	$0	$0	$0
				$140,392			
SUBTOTAL: Direct Costs					$104,944	$56,508	$161,452
Indirect/IDC/Facilities & Administrative Costs			27.92%	$12,860	$8,359	$4,501	$12,860
Total					$113,303	$61,009	$174,312
Other Match:							
Source of Match					$0	$0	$0
GRAND TOTAL					$113,303	$61,009	$174,312

AMOUNT OF FUNDS REQUESTED

The total amount of requested grant assistance is $113,303, or 65% of total project costs, as the project is located in and serves a low-income geographic area and the project results in hybrid solutions. These funds, combined with local match, would be used for the services identified above.

AMOUNT OF CASH FUNDS AVAILABLE

Middlesex County will appropriate the requisite 35% or $61,009 in required local cash match funds, to be combined with the $113,303 in grant assistance to equal the total estimated project cost. The County's match commitment letter is included as **Attachment 1**.

AUTHORIZATION TO REQUEST FUNDING

The authorization to request funding is included as **Attachment 1**.

Appendix B: Scoring Criteria for Flood Prevention and Protection Projects

Virginia Department of Conservation and Recreation
Virginia Community Flood Preparedness Fund Grant Program

Applicant Name:	**Middle Peninsula Planning District Commission**	
Eligibility Information		
Criterion	**Description**	**Check One**
1. Is the applicant a local government (including counties, cities, towns, municipal corporations, authorities, districts, commissions, or political subdivisions created by the General Assembly or pursuant to the Constitution or laws of the Commonwealth, or any combination of these)?		
Yes	Eligible for consideration	X
No	Not eligible for consideration	
2. Does the local government have an approved resilience plan and has provided a copy or link to the plan with this application?		
Yes	Eligible for consideration under all categories	X
No	Eligible for consideration for studies, capacity building, and planning only	
3. If the applicant is <u>not a town, city, or county</u>, are letters of support from all affected local governments included in this application?		
Yes	Eligible for consideration	X
No	Not eligible for consideration	
4. Has this or any portion of this project been included in any application or program previously funded by the Department?		
Yes	Not eligible for consideration	
No	Eligible for consideration	X
5. Has the applicant provided evidence of an ability to provide the required matching funds?		
Yes	Eligible for consideration	X
No	Not eligible for consideration	
N/A	Match not required	

Project Eligible for Consideration	☑ Yes ☐ No

Applicant Name:	Middle Peninsula Planning District Commission

Scoring Information

Criterion	Point Value	Points Awarded
6. Eligible Projects (Select all that apply)		
Projects may have components of both 1.a. and 1.b. below; however, only one category may be chosen. The category chosen must be the primary project in the application.		
1.a. Acquisition of property consistent with an overall comprehensive local or regional plan for purposes of allowing inundation, retreat, or acquisition of structures.	**50**	
☐ Wetland restoration, floodplain restoration ☐ Living shorelines and vegetated buffers. ☐ Permanent conservation of undeveloped lands identified as having flood resilience value by *ConserveVirginia* Floodplain and Flooding Resilience layer or a similar data driven analytic tool ☐ Dam removal ☐ Stream bank restoration or stabilization. ☐ Restoration of floodplains to natural and beneficial function. ☐ Developing flood warning and response systems, which may include gauge installation, to notify residents of potential emergency flooding events.	**45**	**45**
1.b. any other nature-based approach	**40**	
All hybrid approaches whose end result is a nature-based solution	**35**	
All other projects	**25**	
7. Is the project area socially vulnerable? (Based on ADAPT VA's Social Vulnerability Index Score.)		
Very High Social Vulnerability (More than 1.5)	**15**	
High Social Vulnerability (1.0 to 1.5)	**12**	
Moderate Social Vulnerability (0.0 to 1.0)	**8**	8
Low Social Vulnerability (-1.0 to 0.0)	**0**	
Very Low Social Vulnerability (Less than -1.0)	**0**	

8. Is the proposed project part of an effort to join or remedy the community's probation or suspension from the NFIP?		
Yes	**10**	
No	**0**	0
9. Is the proposed project in a low-income geographic area as defined in this manual?		
Yes	**10**	10
No	**0**	
10. Projects eligible for funding may also reduce nutrient and sediment pollution to local waters and the Chesapeake Bay and assist the Commonwealth in achieving local and/or Chesapeake Bay TMDLs. Does the proposed project include implementation of one or more best management practices with a nitrogen, phosphorus, or sediment reduction efficiency established by the Virginia Department of Environmental Quality or the Chesapeake Bay Program Partnership in support of the Chesapeake Bay TMDL Phase III Watershed Implementation Plan?		
Yes	**5**	5
No	**0**	
11. Does this project provide "community scale" benefits?		
Yes	**20**	20
No	**0**	
Total Points		88

Appendix D: Checklist All Categories

Virginia Department of Conservation and Recreation
Virginia Community Flood Preparedness Fund Grant Program

Scope of Work Narrative	
Supporting Documentation	**Included**
Detailed map of the project area(s) (Projects/Studies)	☑ Yes □ No □ N/A
FIRMette of the project area(s) (Projects/Studies)	☑ Yes □ No □ N/A
Historic flood damage data and/or images (Projects/Studies)	☑ Yes □ No □ N/A
A link to or a copy of the current floodplain ordinance	☑ Yes □ No □ N/A
Non-Fund financed maintenance and management plan for project extending a minimum of 5 years from project close	□ Yes □ No ☑ N/A
A link to or a copy of the current hazard mitigation plan	☑ Yes □ No □ N/A
A link to or a copy of the current comprehensive plan	☑ Yes □ No □ N/A
Social vulnerability index score(s) for the project area from ADAPT VA's Virginia Vulnerability Viewer	☑ Yes □ No □ N/A
If applicant is not a town, city, or county, letters of support from affected communities	☑ Yes □ No □ N/A
Completed Scoring Criteria Sheet in Appendix B, C, or D	☑ Yes □ No □ N/A
Budget Narrative	
Supporting Documentation	**Included**
Authorization to request funding from the Fund from governing body or chief executive of the local government	☑ Yes □ No □ N/A
Signed pledge agreement from each contributing organization	□ Yes □ No ☑ N/A

Attachment 1: Community Support/Match Commitment/Authorization Letter

Matthew L. Walker
County Administrator
917 General Puller Hwy
Saluda, VA 23149
804-758-4330
mwalker@co.middlesex.va.us

Emily S. Money
Assistant County Administrator

Ann Marie S. Ricardi
Assistant County Administrator

County of Middlesex
Office of the County Administrator

July 20, 2021

Lewis L. Lawrence, Executive Director
Middle Peninsula Planning District Commission
P.O. Box 286
Saluda, Va 23149

RE: Support Letter for Applications Submitted by MPPDC to Virginia Community Flood Preparedness Fund

Dear Mr. Lawrence:

Middlesex County supports all eligible applications requesting funding under the DCR Flood Preparedness Fund. Proposals submitted by MPPDC on behalf of our constituents are part of our necessary governmental functions and are consistent with regional and local resilience planning efforts. We further support project proposals that demonstrate a primary purpose of prevention or protection to reduce coastal, riverine or inland flooding. The MPPDC Fight the Flood (FTF) Program serves as the region's flood resiliency coordination program. The MPPDC Living Shoreline Program Design and the MPPDC FTF Program provide the operational and administrative expertise for resiliency planning, coordination and implementation for our constituents suffering from flooding challenges. These programs assist to secure the tax base of coastal localities and reduce the inherent risk to the delivery of essential governmental services, including public safety, posed by coastal storms and recurrent flooding of all types.

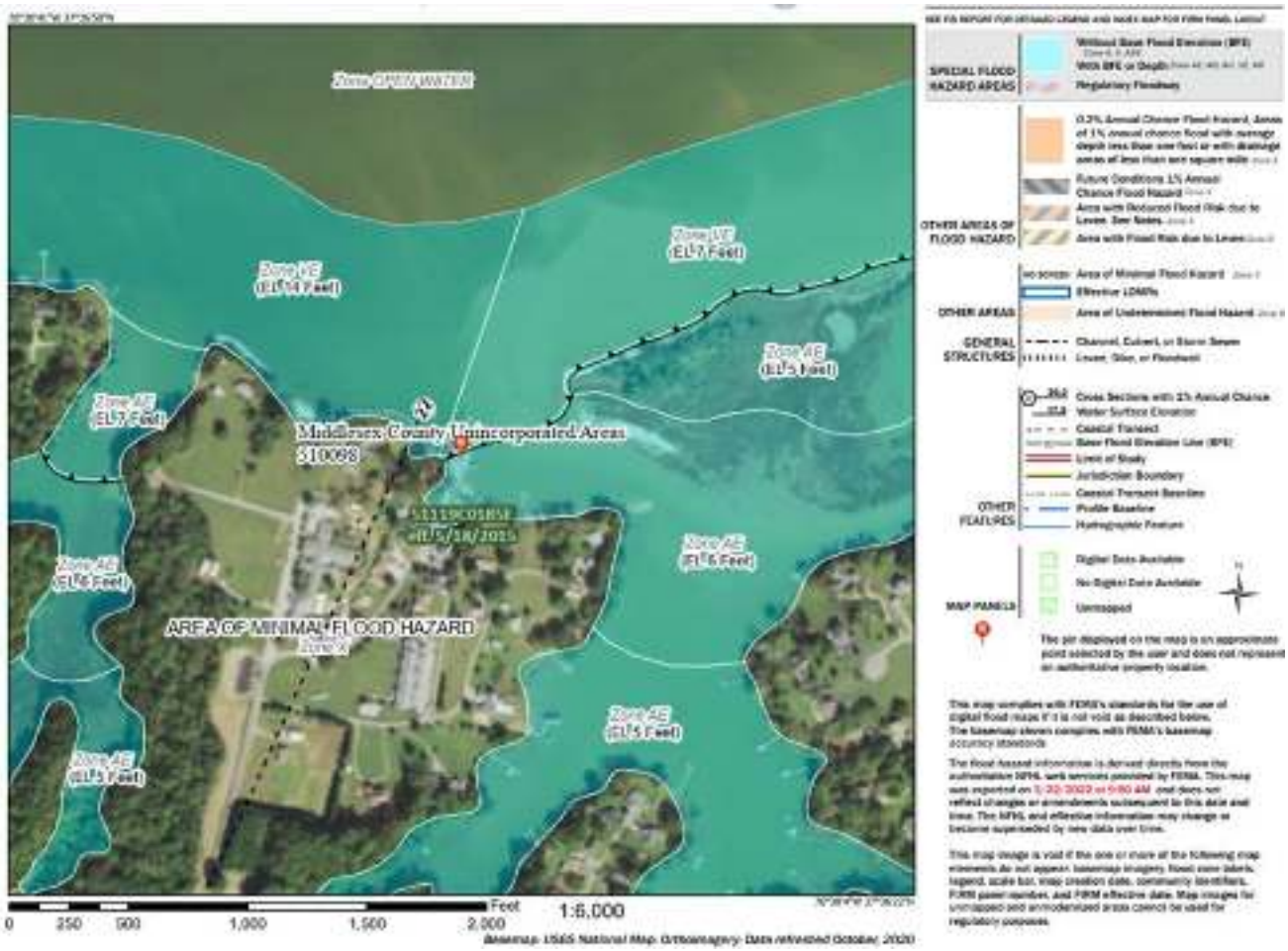
The FTF and the Living Shoreline programs exist to help the owners of flood-prone properties access programs and services to better manage challenges posed by flood water and to direct investments to appropriate mitigation solutions, such as nature-based solutions. When grants and loans are available, we fully support the MPPDC to provide such to qualified constituents, to support the public purpose(s) for which the funds, such as the Virginia Community Flood Preparedness Funds, have been allocated.

Should you have any questions concerning our support for the work of the MPPDC, I can be reached at 804-758-4330.

Respectfully,

Matt Walker
County Administrator

Attachment 2: Project Location FIRMette



Attachment 3: List of historic hurricanes impacting the project area 1851 to present per NOAA.

Hurricane List

Search Filter Criteria

Location: 37.61005, -76.50619

Categories: H5, H4, H3, H2, H1, TS, TD, ET
Months: ALL Years: ALL
El Niño-Southern Oscillation (ENSO): ALL Minimum Pressure (mb) below: 1150 Include Unknown
Pressure Rating: TRUE Buffer Distance: 60
Buffer Unit: Nautical Miles

STORM NAME	DATE RANGE	MAX WIND SPEED	MIN PRESSURE	MAX CATEGORY
ISAIAS 2020(P)	Jul 23, 2020 to Aug 05, 2020	75	987	H1
NESTOR 2019	Oct 17, 2019 to Oct 21, 2019	50	996	TS
MICHAEL 2018	Oct 06, 2018 to Oct 15, 2018	140	919	H5
ANA 2015	May 06, 2015 to May 12, 2015	50	998	TS
ANDREA 2013	Jun 05, 2013 to Jun 08, 2013	55	992	TS

IRENE 2011	Aug 21, 2011 to Aug 30, 2011	105	942	H3
HANNA 2008	Aug 28, 2008 to Sep 08, 2008	75	977	H1
ERNESTO 2006	Aug 24, 2006 to Sep 04, 2006	65	985	H1
CINDY 2005	Jul 03, 2005 to Jul 11, 2005	65	991	H1
JEANNE 2004	Sep 13, 2004 to Sep 29, 2004	105	950	H3
IVAN 2004	Sep 02, 2004 to Sep 24, 2004	145	910	H5
GASTON 2004	Aug 27, 2004 to Sep 03, 2004	65	985	H1
CHARLEY 2004	Aug 09, 2004 to Aug 15, 2004	130	941	H4
ALLISON 2001	Jun 05, 2001 to Jun 19, 2001	50	1000	TS
HELENE 2000	Sep 15, 2000 to Sep 25, 2000	60	986	TS
GORDON 2000	Sep 14, 2000 to Sep 21, 2000	70	981	H1
FLOYD 1999	Sep 07, 1999 to Sep 19, 1999	135	921	H4
DANNY 1997	Jul 16, 1997 to Jul 27, 1997	70	984	H1
BERTHA 1996	Jul 05, 1996 to Jul 17, 1996	100	960	H3
DANIELLE 1992	Sep 22, 1992 to Sep 26, 1992	55	1001	TS
CHARLEY 1986	Aug 13, 1986 to Aug 30, 1986	70	980	H1
DANNY 1985	Aug 12, 1985 to Aug 20, 1985	80	987	H1
DEAN 1983	Sep 26, 1983 to Sep 30, 1983	55	999	TS
BRET 1981	Jun 29, 1981 to Jul 01, 1981	60	996	TS
BOB 1979	Jul 09, 1979 to Jul 16, 1979	65	986	H1

GINGER 1971	Sep 06, 1971 to Oct 05, 1971	95	959	H2
DORIA 1971	Aug 20, 1971 to Aug 29, 1971	55	989	TS
ALMA 1970	May 17, 1970 to May 27, 1970	70	993	H1
CAMILLE 1969	Aug 14, 1969 to Aug 22, 1969	150	900	H5
DORIA 1967	Sep 08, 1967 to Sep 21, 1967	75	973	H1
UNNAMED 1963	Jun 01, 1963 to Jun 04, 1963	50	1000	TS
UNNAMED 1961	Sep 12, 1961 to Sep 15, 1961	55	995	TS
BRENDA 1960	Jul 27, 1960 to Aug 07, 1960	60	976	TS
CINDY 1959	Jul 04, 1959 to Jul 12, 1959	65	995	H1
CONNIE 1955	Aug 03, 1955 to Aug 15, 1955	120	944	H4
BARBARA 1953	Aug 11, 1953 to Aug 16, 1953	80	973	H1
UNNAMED 1945	Sep 12, 1945 to Sep 20, 1945	115	949	H4
UNNAMED 1944	Oct 12, 1944 to Oct 24, 1944	125	937	H4
UNNAMED 1944	Jul 30, 1944 to Aug 04, 1944	70	985	H1
UNNAMED 1943	Sep 28, 1943 to Oct 02, 1943	55	997	TS
UNNAMED 1935	Aug 29, 1935 to Sep 10, 1935	160	892	H5
UNNAMED 1934	Sep 01, 1934 to Sep 04, 1934	45	-1	TS
UNNAMED 1933	Aug 13, 1933 to Aug 28, 1933	120	948	H4
UNNAMED 1929	Sep 19, 1929 to Oct 05, 1929	135	924	H4
UNNAMED 1928	Sep 06, 1928 to Sep 21, 1928	140	929	H5
UNNAMED 1928	Aug 03, 1928 to Aug 13, 1928	90	971	H2

UNNAMED 1924	Sep 27, 1924 to Oct 01, 1924	55	999	TS
UNNAMED 1916	Sep 04, 1916 to Sep 07, 1916	45	-1	TS
UNNAMED 1916	May 13, 1916 to May 18, 1916	40	990	TS
UNNAMED 1907	Jun 24, 1907 to Jun 30, 1907	55	-1	TS
UNNAMED 1904	Sep 08, 1904 to Sep 15, 1904	70	-1	H1
NOT_NAMED 1902	Oct 03, 1902 to Oct 13, 1902	90	970	H2
UNNAMED 1902	Oct 03, 1902 to Oct 13, 1902	90	970	H2
UNNAMED 1902	Jun 12, 1902 to Jun 17, 1902	50	-1	TS
UNNAMED 1899	Oct 26, 1899 to Nov 04, 1899	95	-1	H2
UNNAMED 1894	Oct 01, 1894 to Oct 12, 1894	105	-1	H3
UNNAMED 1893	Oct 20, 1893 to Oct 23, 1893	50	-1	TS
UNNAMED 1889	Sep 12, 1889 to Sep 26, 1889	95	-1	H2
UNNAMED 1888	Sep 06, 1888 to Sep 13, 1888	50	999	TS
UNNAMED 1886	Jun 27, 1886 to Jul 02, 1886	85	-1	H2
UNNAMED 1886	Jun 17, 1886 to Jun 24, 1886	85	-1	H2
UNNAMED 1882	Sep 21, 1882 to Sep 24, 1882	50	1005	TS
UNNAMED 1882	Sep 02, 1882 to Sep 13, 1882	110	949	H3
UNNAMED 1881	Sep 07, 1881 to Sep 11, 1881	90	975	H2
UNNAMED 1879	Aug 13, 1879 to Aug 20, 1879	100	971	H3
UNNAMED 1878	Oct 18, 1878 to Oct 25, 1878	90	963	H2
UNNAMED 1877	Sep 21, 1877 to Oct 05, 1877	100	-1	H3

UNNAMED 1876	Sep 12, 1876 to Sep 19, 1876	100	980	H3
UNNAMED 1874	Sep 25, 1874 to Oct 01, 1874	80	980	H1
UNNAMED 1872	Oct 22, 1872 to Oct 28, 1872	70	-1	H1
NOT_NAMED 1867	Aug 10, 1867 to Aug 18, 1867	45	-1	TS
NOT_NAMED 1864	Jul 23, 1864 to Jul 26, 1864	35	-1	TS
UNNAMED 1863	Sep 16, 1863 to Sep 19, 1863	60	-1	TS
NOT_NAMED 1861	Oct 31, 1861 to Nov 03, 1861	60	992	TS
UNNAMED 1861	Sep 27, 1861 to Sep 28, 1861	70	-1	H1
UNNAMED 1859	Sep 15, 1859 to Sep 18, 1859	70	-1	H1
NOT_NAMED 1858	Aug 11, 1858 to Aug 20, 1858	45	994	TS
UNNAMED 1856	Aug 19, 1856 to Aug 21, 1856	50	-1	TS
NOT_NAMED 1854	Sep 10, 1854 to Sep 14, 1854	65	-1	H1
UNNAMED 1854	Sep 07, 1854 to Sep 12, 1854	110	938	H3
NOT_NAMED 1852	Aug 28, 1852 to Aug 31, 1852	50	-1	TS

Attachment 4: Middlesex Whiting Creek JPA, Design, and Permit Package

Commonwealth Of Virginia

Department Of Transportation

Land Use Permit

Permit No 627-4007

Status REVISION

This permit only grants permission to use whatever rights the Commonwealth Transportation Board and the Department of Transportation have in the right of way and no more, and it is the obligation of the permittee to secure any other releases or permission that may be needed in order to perform the work.

Effective Date [illegible] Expiration Date Jul 29 2022 Reinstatement Date [illegible]

Permittee Information

Owner & Address: County of Middlesex P.O. Box 126 Saluda VA 23149

Contact Person: David W. Krutz

Agent

Contact Person:

Surety & Financial Recordation Information

Name: Middlesex County Board of Supervisors

Surety Account: 03022019

Surety Type: Resolution

Amount: 1,000,000.00

Obligation Amount: 0.00

Surety Holder: CUSTOMER

AUTHORIZATION: In consideration of the [illegible] application, permission is hereby granted insofar as the Commonwealth Transportation Board has rights, powers, and authority [illegible] 33.2-210, 33.2-240, 33.2-241 of the Code of Virginia as amended, grants of Secular Agreement, and/or any other forms, for you to perform the work and/or activity as described below.

Location

County/City/Town: Middlesex County

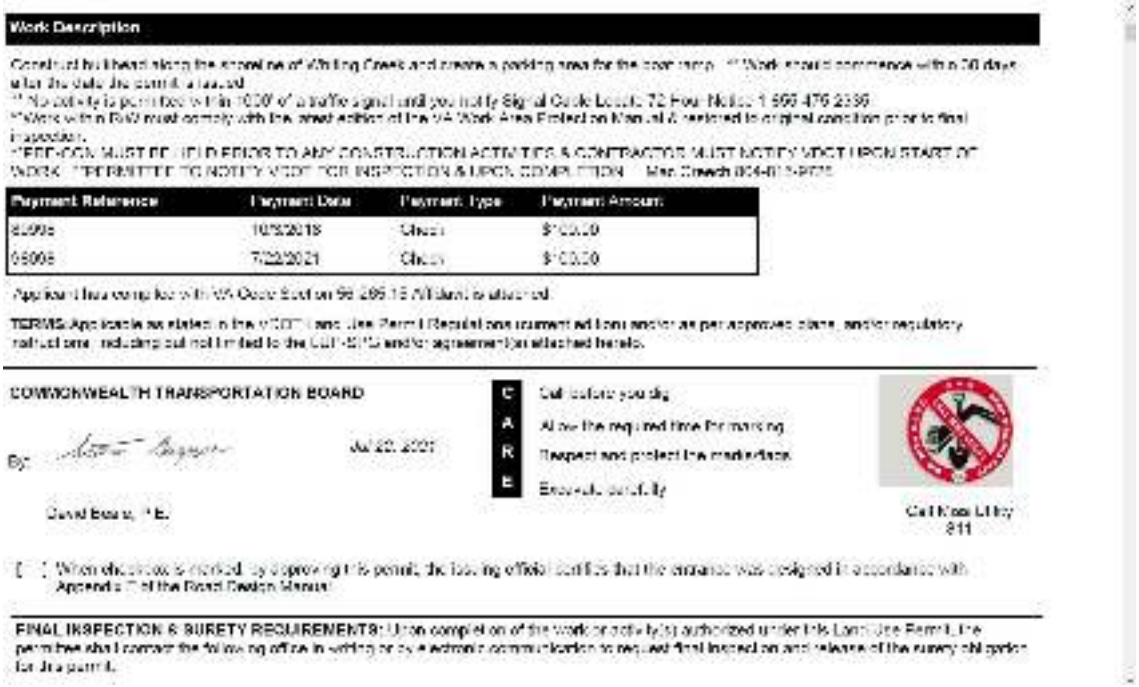
From Route Number: 33

To Route Number: 634

Highway Sequence:

From Route Name: General Puller Hwy

To Route Name: Warren Purgo Road



Work Description

Construct by hand along the shoreline of Whiting Creek and create a parking area for the boat ramp. ** Work shall commence within a 30 days after the date the permit is issued.

** No activity is permitted within 1000' of a traffic signal until you notify Signal Quick Locate 72 Hour Notice 1-800-476-2396

**Work within ROW must comply with the latest edition of the VA Work Area Protection Manual & restored to original condition prior to final inspection.

**PERMIT MUST BE HELD PRIOR TO ANY CONSTRUCTION ACTIVITIES & CONTRACTOR MUST NOTIFY VDOT UPON START OF WORK. **PERMITTEE TO NOTIFY VDOT FOR INSPECTION & UPON COMPLETION Mac Creech (804-815-7[illegible]

Payment Reference	Payment Date	Payment Type	Payment Amount
61[illegible]	10/3/2019	Check	$ 0.00
66[illegible]	7/22/2021	Check	$ 0.00

Applicant has complied with VA Code Sect on 56-289.1 & Affidavit is attached.

TERMS: Applicable as stated in the VDOT Land Use Permit Regulations current edition and/or as per approved plans, and/or regulatory restrictions, including but not limited to the CLUP-SUPs and/or agreements attached hereto.

COMMONWEALTH TRANSPORTATION BOARD

By: [illegible] Jul 20, 2021

David Brown, P.E.

C A R E

Call before you dig

Allow the required time for marking

Respect and protect the marks/area

Excavate carefully

Call Miss Utility 811

[ ] When checked by approving this permit, the following certifies that the entrance was designed in accordance with Appendix F of the Road Design Manual.

FINAL INSPECTION & SURETY REQUIREMENTS: Upon completion of the work or activity(s) authorized under this Land Use Permit, the permittee shall contact the following office in writing or by electronic communication to request final inspection and release of the surety obligation for this permit.

Attachment 5: Flood Prevention Project and its Relevance to Other Projects

MPPDC staff have worked throughout the years to understand the policy, research and impacts of flooding (i.e., stormwater, coastal, riverine, sea level rise) and coastal resiliency to the region. Below is a list of projects that have built upon each other over the year that have contributed to our understanding.

Climate Change & Sea Level Rise (2009 to 2012): The MPPDC was funded for a 3 Phase project through the Virginia Coastal Zone Management Program to assess the impacts of climate and sea level rise throughout the region. With over 1,000 miles of linear shoreline, the Middle Peninsula has a substantial amount of coast under direct threat of accelerated climate change and more specifically sea-level. In Phase 1, MPPDC staff assessed the potential anthropogenic and ecological impacts of climate change. Phase 2 focused on the facilitating presentations and develop educational materials about sea level rise and climate change for the public and local elected officials. Finally Phase 3 focused on developing adaptation public policies in response to the assessments.

Phase 1: Middle Peninsula Climate Change Adaptation: Facilitation of Presentations and Discussions of Climate Change Issues with Local Elected Officials and the General Public
Phase 2: Climate Change III: Initiating Adaptation Public Policy Development
Phase 3: Phase 3 Climate Change: Initiating Adaptation Public Policy Development

Emergency Management - Hazard Mitigation Planning (2009 to Present): Since 2009, the Middle Peninsula Planning District Commission has assisted regional localities in meeting the federal mandate to have an adopted local hazard plan. *The Regional All Hazards Mitigation Plan addresses the natural hazards prone to the region, including hurricanes, winter storms, tornadoes, coastal flooding, coastal/shoreline erosion, sea level rise, winter storms, wildfire, riverine flooding, wind, dam failures, drought, lightning, and earthquakes. This plan also consists of a HAZUS assessment of hurricane wind, sea level rise* (i.e., Mean High Higher Water and the NOAA 2060 intermediate-high scenario), *and flooding (coastal and riverine flooding) that estimates losses from each hazard.* The Middle Peninsula All-Hazard Mitigation Plan Update 2021 is currently being updated. The 2021 All Hazards Mitigation Plan builds off and updates previous mitigation plans.

Land and Water Quality Protection (2014): In light of changing Federal and State regulations associated with Bay clean up-nutrient loading, nutrient goals, clean water, OSDS management, storm water management, TMDLs, etc., staff from the Middle Peninsula Planning District Commission (MPPDC) will develop a rural pilot project which aims to identify pressing coastal issue(s) of local concern related to Bay clean up and new federal and state legislation which ultimately will necessitate local action and local policy development. Staff has identified many cumulative and secondary impacts that have not been researched or discussed within a local public policy venue. Year 1-3 will include the identification of key concerns related to coastal

land use management/water quality and Onsite Sewage Disposal System (OSDS) and community system deployment. Staff will focus on solution based approaches, such as the establishment of a regional sanitary sewer district to manage the temporal deployment of nutrient replacement technology for installed OSDS systems, assessment of land use classifications and taxation implications associated with new state regulations which make all coastal lands developable regardless of environmental conditions; use of aquaculture and other innovative approaches such as nutrient loading offset strategies and economic development drivers.

Department of Conservation and Recreation Stormwater Management (2014): The Virginia General Assembly created a statewide, comprehensive stormwater management program related to construction and post-construction activities (HB1065 - Stormwater Integration). The Virginia Department of Conservation and Recreation requires stormwater management for projects with land disturbances of one acre or more. This new state mandate requires all Virginia communities to adopt and implement stormwater management programs by July 1, 2014, in conjunction with existing erosion and sediment control programs.

Additionally, the communities within the MPPDC are required to address stormwater quality as stipulated by the Chesapeake Bay TMDL Phase II Watershed Implementation Plan and the Virginia Stormwater Regulations. The MPPDC Stormwater Program helped localities develop tools specific to the region necessary to respond to the state mandate requirement for the development of successful stormwater programs.

Stormwater Management-Phase II (2014): MPPDC staff and Draper Aden Associates worked with localities (i.e., Middlesex, King William, and Mathews Counties and the Town of West Point) interested in participating in a Regional Stormwater Management Program. While each locality sought different services from the regional program, this project coordinated efforts, developed regional policies and procedures, and the proper tools to implement a regional VSMP.

Mathews County Rural Ditch Enhancement Study (2015): In contract with Draper Aden Associates, a comprehensive engineering study was developed to provide recommendations and conceptual opinions of probable costs to improve the conveyance of stormwater and water quality through the ditches in Mathews County.

Drainage and Roadside Ditching Authority (2015): This report explored the enabling mechanism in which a Regional Drainage and Roadside Ditching Authority could be developed. An Authority would be responsible for prioritizing ditch improvement needs, partnering with Virginia Department of Transportation (VDOT) to leverage available funding, and ultimately working toward improving the functionality of the region's stormwater conveyance system.

Living Shoreline Incentive Program (2016 to present): In 2011 Virginia legislation was passed designating living shorelines as the preferred alternative for stabilizing Virginia tidal floodplain shorelines. The Virginia Marine Resources Commission, in cooperation with the Virginia

Department of Conservation and Recreation and with technical assistance from the Virginia Institute of Marine Science (VIMS), established and implemented a general permit regulation that authorizes and encourages the use of living shorelines however, no financial incentives were put in place to encourage consumers to choose living shorelines over traditional hardening projects in the Commonwealth. To fill this, need the MPPDC developed the MPPDC Living Shoreline Incentives Program to offer loans and/or grants to private property owners interested in installing living shorelines to stabilize their shoreline.

Currently, loans are available to assist homeowners to install living shorelines on suitable properties. Loans up to $10,000 can be financed for up to 5 years (60 months). Loans over $10,000 can be financed for up to 10 years (120 months). Interest is at the published Wall Street Journal Prime rate on the date of loan closing - currently at 5.25% (11/29/18). Minimum loan amount is $1,000. Maximum determined by income and ability to repay the loan. Finally, there are currently no grants available in this program. Since 2016 under the MPPDC Living Shoreline Revolving Loan program, 8 living shorelines have been financed and built to date encumbering ~$500,000 in VRA loan funding and ~$400,000 in NFWF grant funding. Living Shoreline construction cost to date range per job $14,000- $180,000. MPPDC oversees all aspects (planning, financing, constriction, and loan servicing) of these projects from cradle to grave.

Mathews County Ditch Project - VCPC White Papers (2017): This report investigated the challenges presented by the current issues surrounding the drainage ditch network of Mathews County. The study summarized research conducted in the field; examined the law and problems surrounding the drainage ditches; and proposed some next steps and possible solutions.

Mathews County Ditch Mapping and Database Final Report (2017): This project investigated roadside ditch issues in Mathews County through mapping and research of property deeds to document ownership of ditches and outfalls. This aided in understanding the needed maintenance of failing ditches and the design of a framework for a database to house information on failing ditches to assist in the prioritization of maintenance needs.

Virginia Stormwater Nuisance Law Guidance (2018): This report was developed by the Virginia Coastal Policy Center to understand the ability of a downstream recipient of stormwater flooding to bring a claim under Virginia law against an upstream party, particularly a nuisance claim. The report summarizes how Virginia courts determine stormwater flooding liability between two private parties.

Oyster Bag Sill Construction and Monitoring at Two Sites in Chesapeake Bay (2018): VIMS Shoreline Studies Program worked with the PAA to (1) install oyster bag sills as shore protection at two PAA sites with the goal of determining effective construction techniques and placement guidelines for Chesapeake Bay shorelines and (2) assess the effectiveness for shore protection with oyster bags on private property through time.

Fight the Flood Program (2020): The Fight the Flood was launched in 2020 to connect property

owners to contractors who can help them protect their property from rising flood waters. FTF also offers a variety of financial tools to fund these projects including but limited to the Septic Repair revolving loan program, Living Shoreline incentives revolving loan fund program, and plant insurance for living shorelines.