1954 - Town of Colonial Beach- Public Stormwater Infrastructure Asset Inventory & Assessment

Application Details

Funding Opportunity:	1448-Virginia Community Flood Preparedness Fund - Study Grants - CY23 Round 4
Funding Opportunity Due Date:	Nov 12, 2023 11:59 PM
Program Area:	Virginia Community Flood Preparedness Fund
Status:	Under Review
Stage:	Final Application
Initial Submit Date:	Nov 11, 2023 1:52 PM
Initially Submitted By:	J. C. LaRiviere
Last Submit Date:	
Last Submitted By:	

Contact Information

Primary Contact Information

Active User*:	Yes
Type:	External User
Name*:	Mr. (Salutation) J. C. (First Name) Middle Name LaRiviere (Last Name)
Title:	
Email*:	jlariviere@colonialbeachva.net
Address*:	315 Douglas Avenue
	Colonial Beach (City) Virginia (State/Province) 22443 (Postal Code/Zip)
Phone*:	(540) 361-0501 (Phone) Ext. ###-###-####
Fax:	###-###-####
Comments:	

Organization Information

Status*:	Approved
Name*:	WESTMORELAND COUNTY
Organization Type*:	Local Government
Tax ID*:	

Unique Entity Identifier (UEI)*:

Organization Website: iadamsjacobs@colonialbeachva.net

Address*: Town of Colonial Beach

315 Douglas Avenue

Colonial Beach (City) Virginia (State/Province) 22443 (Postal Code/Zip)

Phone*: (804) 296-6385 Ext.
###-###-####

Fax: ###-###-####

Benefactor:

Vendor ID:

Comments:

VCFPF Applicant Information

Project Description

Name of Local Government*: Town of Colonial Beach

Your locality's CID number can be found at the following link: Community Status Book Report

NFIP/DCR Community Identification Number (CID)*: 510172

If a state or federally recognized Indian tribe,

Name of Tribe:

Authorized Individual*: Jan C. (First Name) LaRiviere (Last Name)

Mailing Address*: 315 Douglas Avenue
Address Line 1

Address Line 2

Colonial Beach (City) Virginia (State) 22443 (Zip Code)

Telephone Number*: 540-361-0501

Cell Phone Number*: 540-361-0501

Email*: jlariviere@colonialbeachva.gov

Is the contact person different than the authorized individual?

Contact Person*: No

Enter a description of the project for which you are applying to this funding opportunity

Project Description*:

The goal of the study is to assess public Stormwater system vulnerability to riverine flooding, sea-level rise, and increased frequency and strength of major storm events. The study will provide the Town with the location and condition of all public Stormwater infrastructure, identify pipe carrying capacity, and assess inflow & infiltration issues. The Town will then develop a plan to retrofit, repair, and/or replace infrastructure based on precipitaiton/flood modeling and other relevant data.

Low-income geographic area means any locality, or community within a locality, that has a median household income that is not greater than 80 percent of the local median household income, or any area in the Commonwealth designated as a qualified opportunity zone by the U.S. Secretary of the Treasury via his delegation of authority to the Internal Revenue Service. A project of any size within a low-income geographic area will be considered.

Is the proposal in this application intended to benefit a low-income geographic area as defined above?

Benefit a low-income geographic area*: Yes

Information regarding your census block(s) can be found at census.gov

Census Block(s) Where Project will Occur*: 104

Is Project Located in an NFIP Participating Community?*: Yes

Is Project Located in a Special Flood Hazard Area?*: Yes

Flood Zone(s) (if applicable):

Flood Insurance Rate Map Number(s) (if applicable):

Eligibility - Round 4

Eligibility

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)?

Local Government*: Yes

Yes - Eligible for consideration
No - Not eligible for consideration

If the applicant is not a town, city, or county, are letters of support from all affected local governments included in this application?

Letters of Support*: N/A

Yes - Eligible for consideration
No - Not eligible for consideration

Has this or any portion of this project been included in any application or program previously funded by the Department?

Previously Funded*: No

Yes - Not eligible for consideration
No - Eligible for consideration

Has the applicant provided evidence of an ability to provide the required matching funds?

Evidence of Match Funds*: Yes

Yes - Eligible for consideration
No - Not eligible for consideration
N/A - Match not required

Scope of Work - Studies - Round 4

Scope of Work

Upload your Scope of Work

Please refer to Part IV, Section B. of the grant manual for guidance on how to create your scope of work

Scope of Work*: SoWnarrative.CFPF23.ToCB.docx

Comments:

Budget Narrative

Budget Narrative Attachment*: Budget Narrative.CFPF23.ToCB.docx

Comments:

Scoring Criteria for Studies - Round 4

Scoring

Revising floodplain ordinances to maintain compliance with the NFIP or to incorporate higher standards that may reduce the risk of flood damage. This must include establishing processes for implementing the ordinance, including but not limited to, permitting, record retention, violations, and variances. This may include revising a floodplain ordinance when the community is getting new Flood Insurance Rate Maps (FIRMs), updating a floodplain ordinance to include floodplain setbacks or freeboard, or correcting issues identified in a Corrective Action Plan.

Revising Floodplain Ordinances*: No
Select

Creating tools or applications to identify, aggregate, or display information on flood risk or creating a crowd-sourced mapping platform that gathers data points about real-time flooding. This could include a locally or regionally based web-based mapping product that allows local residents to better understand their flood risk.

Mapping Platform*: No
Select

Conducting hydrologic and hydraulic studies of floodplains. Applicants who create new maps must apply for a Letter of Map Revision or a Physical Map Revision through the Federal Emergency Management Agency (FEMA).

Hydrologic and Hydraulic Studies*: Yes
Select

Studies and Data Collection of Statewide and Regional Significance. Funding of studies of statewide and regional significance and proposals will be considered for the following types of studies:
Updating precipitation data and IDF information (rain intensity, duration, frequency estimates) including such data at a sub-state or regional scale on a periodic basis.

Updating Precipitation Data and IDF Information*: Yes
Select

Regional relative sea level rise projections for use in determining future impacts.

Projections*: Yes
Select

Vulnerability analysis either statewide or regionally to state transportation, water supply, water treatment, impounding structures, or other significant and vital infrastructure from flooding.

Vulnerability Analysis*: No
Select

Flash flood studies and modeling in riverine regions of the state.

Flash Flood Studies*: Yes
Select

Statewide or regional stream gauge monitoring to include expansion of existing gauge networks.

Stream Gauge Monitoring*: No
Select

New or updated delineations of areas of recurrent flooding, stormwater flooding, and storm surge vulnerability in coastal areas that include projections for future conditions based on sea level rise, more intense rainfall events, or other relevant flood risk factors.

Delineations of Areas of Recurrent Flooding*: Yes
Select

Regional flood studies in riverine communities that may include watershed-scale evaluation, updated estimates of rainfall intensity, or other information.

Regional Flood Studies*: No
Select

Regional Hydrologic and Hydraulic Studies of Floodplains

Regional Hydrologic and Hydraulic Studies of Floodplains*: No
Select

Studies of potential land use strategies that could be implemented by a local government to reduce or mitigate damage from coastal or riverine flooding.

Potential Land Use Strategies*: Yes
Select

Other proposals that will significantly improve protection from flooding on a statewide or regional basis.

Other Proposals*: No
Select

Is the project area socially vulnerable? (based on ADAPT Virginia?s Social Vulnerability Index Score)
Social Vulnerability Scoring:
Very High Social Vulnerability (More than 1.5)
High Social Vulnerability (1.0 to 1.5)
Moderate Social Vulnerability (0.0 to 1.0)
Low Social Vulnerability (-1.0 to 0.0)
Very Low Social Vulnerability (Less than -1.0)

Socially Vulnerable*: Moderate Social Vulnerability (0.0 to 1.0)

Is the proposed project part of an effort to join or remedy the community?s probation or suspension from the NFIP?

NFIP*: No

Is the proposed project in a low-income geographic area as defined below?

"Low-income geographic area" means any locality, or community within a locality, that has a median household income that is not greater than 80 percent of the local median household income, or any area in the Commonwealth designated as a qualified opportunity zone by the U.S. Secretary of the Treasury via his delegation of authority to the Internal Revenue Service. A project of any size within a low-income geographic area will be considered.

Low-Income Geographic Area*: Yes

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?

Reduction of Nutrient and Sediment Pollution*: No

Comments:

Scope of Work Supporting Information - Studies

Scope of Work Supporting Information

Is the proposed study a new study or updates on a prior study?

New or Updated Study*: New Study

Describe the relationship of the study to the local government's needs for flood prevention and protection, equity, community improvement, identification of nature-based solutions or other priorities contained in this manual

Relationship of Study to Priorities Contained in this Manual*:

Colonial Beach is a small waterfront town that sits on a peninsula and is highly susceptible to major flood damage. The Town is unable to afford the extensive planning efforts required to address the massive and ongoing threats posed by flooding, sea level rise, increased frequency and strength of storm events, and climate change without grant funding. This study will enable the Town to combine infrastructure condition data with GIS mapping and flood/precipitation modeling in order to determine which system components are causing the most severe issues and develop a plan to begin addressing these. This will allow the Town to make planning and budgeting decisions based on the best available science.

The Town has a moderate social vulnerability rating, 20% of its residents live in poverty, and meets the definition of a low-income geographic area. This, in combination with the Town?s limiting annual budget, means that resources needed to address major issues will likely need to come from external sources. The equity goals of this program are certainly met for this town-wide study.

Beyond the environmental, economic, public safety, and social factors at play- from an operational perspective as a municipality- this is about fiscal efficiency. Currently, repairs to infrastructure are made when failures occur. Without data from this study enabling a holistic approach, these repairs will be patch-jobs at the point of failure rather than assessing systemic weaknesses and finding all relevant contributing factors. For example, a particular manhole might be flooding due to drain or other malfunctions several hundred feet away. The general justification for the study is that investing up-front in planning, while costly and time-consuming, will save money and resources in the long run because the systemic issues will be addressed proactively.

Describe the qualifications of the individuals or organizations charged with conducting the study or the elements of any request for proposal that define those qualifications

Qualifications of Individuals Conducting Study*:

There is a possibility that the Town's current contract with Berkley Group and subcontractors TetraTech for the Resilience plan and Phase 1 of the Stormwater plan could be modified to include this study. This will be investigated by the Town's procurement professionals and need to go before Town Council for approval should funding be obtained. If the contract is not modifiable or if Town procurement policies preclude this, the Town will seek a qualified engineering firm with experience conducting public stormwater infrastructure studies for comparable localities in coastal areas challenged by aging infrastructure and deferred maintenance.

Describe the expected use of the study results in the context of the local resilience plan or, in the case of regional plans, how the study improves any regional approach

Expected use of Study Results*:

The local resilience plan is currently under development, as is phase I of the stormwater management plan. The resilience plan will contain high-level Stormwater planning principles and best practices. Phase I of the stormwater plan is investigating the three highest priority areas and proposing solutions to issues in these areas.

This study will inform phase II of the Stormwater Management Plan. Phase 2 of the Stormwater Management Plan will be based on this study- an asset inventory and assessment (AIA) focusing on the field collection of stormwater infrastructure data for stormwater pipes, inlets, catch basins, and ditches within the public right of way. Collected data will allow for the development of a comprehensive stormwater GIS layer of existing infrastructure that will also include a condition assessment.

This will support the identification, budgeting, prioritization, and execution of repairs/rehabilitation that can be performed by the Town. Further, Phase 2 will support the development of watershed models using HEC-RAS and/or SWMM to determine stormwater pipe and ditch carrying capacity for existing and future condition scenarios.

If applicable, describe how the study may improve Virginia's flood protection and prevention abilities in a statewide context (type N/A if not applicable)

Statewide Improvements*:

N/A

Provide a list of repetitive and/or severe repetitive loss properties. Do not provide the addresses for the properties, but include an exact number of repetitive and/or severe repetitive loss structures within the project area

Repetitive Loss and/or Severe Repetitive Loss Properties*: Information Request Pending with FEMA.docx

Describe the residential and commercial structures impacted by this project, including how they contribute to the community such as historic, economic, or social value. Provide an exact number of these structures in the project area

Residential and/or Commercial Structures*:

Project area: Entire Town

A survey conducted by the Virginia Department of Historic Resources identified 122 structures of historic, social, or cultural significance within the three zones selected for surveying. This survey was funded by the Emergency Supplemental Historic Preservation Fund, and is the first step the Town has taken in connecting resilience and flood planning with historic preservation efforts. This further demonstrates the Town's willingness and capability to strategically work with external partners on issues of critical import. The Town also has a federally and state recognized historic commercial district in the downtown riverfront area.

If there are critical facilities/infrastructure within the project area, describe each facility

Critical Facilities/Infrastructure*:

Critical Infrastructure:
- Wastewater Treatment Plant
- Potable water tanks
- Pump stations
- Water towers (2)
- Fuel stations (1 for Town use, 2 commercial)
- Range Stations (land for stations leased by Town to US Navy to support Dahlgren Naval Base Weapons Testing)

Budget

Budget Summary

Grant Matching Requirement*:	LOW INCOME - Flood Prevention and Protection Studies - Fund 90%/Match 10%
I certify that my project is in a low-income geographic area:	Yes
Total Project Amount*:	$89,000.00
REQUIRED Match Percentage Amount:	$8,900.00

BUDGET TOTALS

Before submitting your application be sure that you meet the match requirements for your project type.

Match Percentage:	10.00% Verify that your match percentage matches your required match percentage amount above.
Total Requested Fund Amount:	$80,100.00
Total Match Amount:	$8,900.00
TOTAL:	$89,000.00

Personnel

Description	Requested Fund Amount	Match Amount	Match Source
No Data for Table			

Fringe Benefits

Description	Requested Fund Amount	Match Amount	Match Source
No Data for Table			

Travel

Description	Requested Fund Amount	Match Amount	Match Source
No Data for Table			

Equipment

Description	Requested Fund Amount	Match Amount	Match Source
No Data for Table			

Supplies

Description	Requested Fund Amount	Match Amount	Match Source
No Data for Table			

Construction

Description	Requested Fund Amount	Match Amount	Match Source
No Data for Table			

Contracts

Description	Requested Fund Amount	Match Amount	Match Source
Contract with Engineers to Conduct AIA Study	$80,100.00	$8,900.00	Town Resilience Fund- or funds already committed to current resilience efforts- see budget narrative
	$80,100.00	**$8,900.00**	

Pre-Award and Startup Costs

Description	Requested Fund Amount	Match Amount	Match Source
No Data for Table			

Other Direct Costs

Description	Requested Fund Amount	Match Amount	Match Source

No Data for Table

Supporting Documentation

Supporting Documentation

Named Attachment	Required	Description	File Name	Type	Size	Upload Date
Detailed map of the project area(s) (Projects/Studies)		Entire town. Link to GIS Parcel Viewer below: https://tocb.maps.arcgis.com/apps/instant/basic/index.html?appid=2cbb55b267c84ab884d43c6e12fe9066	GISParcelViewerScreenshot.PNG	PNG	1002 KB	11/11/2023 12:27 PM
FIRMette of the project area(s) (Projects/Studies)						
Historic flood damage data and/or images (Projects/Studies)						
A link to or a copy of the current floodplain ordinance		Town of Colonial Beach Floodplain Ordinance	Floodplain Ordinance.pdf	pdf	1 MB	11/08/2023 11:24 AM
Maintenance and management plan for project						
A link to or a copy of the current hazard mitigation plan		Regional Hazard Mitigation Plan	NNPDC Hazard Mitigation Plan.pdf	pdf	12 MB	11/11/2023 12:31 PM
A link to or a copy of the current comprehensive plan		Colonial Beach 2020-2030 Comprehensive Plan	Town-of-Colonial-Beach-Comprehensive-Plan_2020-2030.pdf	pdf	10 MB	11/08/2023 11:27 AM
Social vulnerability index score(s) for the project area		Moderate Social Vulnerability Rating	ToCBModerateSVR.PNG	PNG	42 KB	11/11/2023 12:23 PM
Authorization to request funding from the Fund from governing body or chief executive of the local government		Town Council Authorization for Municipal Government to Apply for CFPF Funding	Res 42-23 of Support.CFPF.11.1.23.pdf	pdf	239 KB	11/08/2023 11:31 AM
Signed pledge agreement from each contributing organization						
Maintenance Plan						
Benefit-cost analysis must be submitted with project applications over $2,000,000. in lieu of using the FEMA benefit-cost analysis tool, applicants may submit a narrative to describe in detail the cost benefits and value. The narrative must explicitly indicate the risk reduction benefits of a flood mitigation project and compares those benefits to its cost-effectiveness.						
Benefit Cost Analysis						
Other Relevant Attachments						

Letters of Support

Description	File Name	Type	Size	Upload Date

No files attached.

RESOLUTION #42-23 Authorizes Municipal Government to Apply for Community Flood Preparedness Fund to Support Development of Town Resilience Plan & Stormwater Management Plan

WHEREAS, the Community Flood Preparedness Fund contributed $103,500 for this project; and

WHEREAS, additional funding is needed to support data collection for the Stormwater Management Plan; and

WHEREAS, the Town is acutely aware of current and future risks posed by environmental factors as a 75% waterfront community; and

WHEREAS, the Town currently has no resilience plan or stormwater management plan; and

WHEREAS, this grant funding will enable the Town to undertake a comprehensive resilience planning effort to mitigate risks facing the Town related to floods, storms, rising sea levels, and other impacts of climate change.

NOW, THEREFORE, BE IT RESOLVED by the Colonial Beach Town Council at its work session on November 1, 2023 that:

1. The Colonial Beach Town Council authorizes the municipal government to submit an application to the Community Flood Preparedness Fund Grant Program

2. As a 75% waterfront community on a peninsula, the Town faces major short-term and long-term risks posed by environmental factors such as flooding, major storm events, rising sea levels, and climate change.

3. The Town of Colonial Beach is committed to becoming a more resilient community to protect the Town from environmental risks for the benefit of all Town residents.

Upon motion made by Mr .Wood and seconded by Ms. Roberson, Resolution #42-23, as written, passed with a unanimous vote of council members present.

	Aye	***Nay***		***Aye***	***Nay***
Schick	***X***		***Wood***	***X***	
Roberson	***X***		***Brown***	***X***	
Williams	***X***		***Self Sullivan***	***X***	
Allison	***X***				

THIS IS TO CERTIFY THIS IS A TRUE COPY OF AN ORIGINAL RESOLUTION, approved by the Town Council at a Meeting of Council held Wednesday, November 1, 2023 at the Colonial Beach Community Center, with a quorum of Council being present.

Heather Oliver

Heather Oliver, Town Clerk

Article 21
FLOOD PLAIN OVERLAY DISTRICT

Section 21.1 – Purpose/Statement of Intent [44 CFR 59.22(a) (2)]

This ordinance is adopted pursuant to the authority granted to localities by Va. **Code** § 15.2 - 2280.

Va. **Code** § 15.2-2283 specifies that zoning ordinances shall be for the general purpose of promoting the health, safety, or general welfare of the public and of further accomplishing the objectives of § 15.2-2200 which encourages localities to improve the public health, safety, convenience, and welfare of their citizens. To these ends, flood ordinances shall be designed to provide for safety from flood, to facilitate the provision of flood protection, and to protect against loss of life, health, or property from flood.

In accordance with these directed provisions, this ordinance is specifically adopted pursuant to the authority granted to localities by Va. **Code** § 15.2 - 2280.

The purpose of these provisions is to prevent: the loss of life and property, the creation of health and safety hazards, the disruption of commerce and governmental services, the extraordinary and unnecessary expenditure of public funds for flood protection and relief, and the impairment of the tax base by

A. regulating uses, activities, and development which, alone or in combination with other existing or future uses, activities, and development, will cause unacceptable increases in flood heights, velocities, and frequencies;

B. restricting or prohibiting certain uses, activities, and development from locating within districts subject to flooding;

C. requiring all those uses, activities, and developments that do occur in flood-prone districts to be protected and/or flood-proofed against flooding and flood damage; and,

D. protecting individuals from buying land and structures which are unsuited for intended purposes because of flood hazards.

Section 21.2 - Applicability

These provisions shall apply to all privately and publicly owned lands within the jurisdiction of The Town of Colonial Beach and identified as areas of special flood hazard identified by the Town of Colonial Beach or shown on the flood insurance rate map (FIRM) or included in the flood insurance study (FIS) that is provided to the Town of Colonial Beach by FEMA.

Section 21.3 - Compliance and Liability

A. No land shall hereafter be developed and no structure shall be located, relocated, constructed, reconstructed, enlarged, or structurally altered except in full compliance with the terms and provisions of this ordinance and any other applicable ordinances and regulations which apply to uses within the jurisdiction of this ordinance.

B. The degree of flood protection sought by the provisions of this ordinance is considered reasonable for regulatory purposes and is based on acceptable engineering methods of study, but does not imply total flood protection. Larger floods may occur on rare occasions. Flood heights may be increased by man-made or natural causes, such as ice jams and bridge openings restricted by debris. This ordinance does not imply that districts outside the floodplain district or land uses permitted within such district will be free from flooding or flood damages.

C. This ordinance shall not create liability on the part of The Town of Colonial Beach or any officer or employee thereof for any flood damages that result from reliance on this ordinance or any administrative decision lawfully made thereunder.

Section 21.4 – Records [44 CFR 59.22(a) (9) (iii)]

Records of actions associated with administering this ordinance shall be kept on file and maintained by or under the direction of the Floodplain Administrator in perpetuity[1].

Section 21.5 - Abrogation and Greater Restrictions [44 CFR 60.1(b)]

To the extent that the provisions are more restrictive, this ordinance supersedes any ordinance currently in effect in flood-prone districts.

These regulations are not intended to repeal or abrogate any existing ordinances including subdivision regulations, zoning ordinances, or building codes. In the event of a conflict between these regulations and any other ordinance, the more restrictive shall govern.

Section 21.6 - Severability

If any section, subsection, paragraph, sentence, clause, or phrase of this ordinance shall be declared invalid for any reason whatever, such decision shall not affect the remaining portions of this ordinance. The remaining portions shall remain in full force and effect; and for this purpose, the provisions of this ordinance are hereby declared to be severable.

Section 21.7 - Penalty for Violations [44 CFR 60.2(e)]
Any person who fails to comply with any of the requirements or provisions of this article or directions of the director of planning or any authorized employee of the Town of Colonial Beach shall be guilty of the appropriate violation and subject to the penalties therefore.

The VA USBC addresses building code violations and the associated penalties in Section 104 and Section 115. Violations and associated penalties of the Zoning Ordinance of The Town of Colonial Beach are addressed in the Town of Colonial Beach Zoning Ordinance.

In addition to the above penalties, all other actions are hereby reserved, including an action in equity for the proper enforcement of this article. The imposition of a fine or penalty for any violation of, or noncompliance with, this article shall not excuse the violation or noncompliance or permit it to continue; and all such persons shall be required to correct or remedy such violations within a reasonable time. Any structure constructed, reconstructed, enlarged, altered or relocated in noncompliance with this article may be declared by the Town of Colonial Beach to be a public nuisance and abatable as such. Flood insurance may be withheld from structures constructed in violation of this article[2].

1 This is a requirement to participate in the NFIP and is more restrictive then the Library of Virginia policy. If these records are not available, there is no way to show that a structure was built in compliance with the regulations at the time. Maintaining these records is the only way the community can show that it has been fairly administering the program.
2 If this is not a part of the zoning ordinance specific fines and penalties will need to be adopted instead.

ADMINISTRATION

Section 21.8 - Designation of the Floodplain Administrator [44 CFR 59.22(b)]

The Director of Planning and Community Development is hereby appointed to administer and implement these regulations and is referred to herein as the Floodplain Administrator. The Floodplain Administrator may:

(A) Do the work themselves. In the absence of a designated Floodplain Administrator, the duties are conducted by the Town of Colonial Beach chief executive officer.

(B) Delegate duties and responsibilities set forth in these regulations to qualified technical personnel, plan examiners, inspectors, and other employees.

(C) Enter into a written agreement or written contract with another community or private sector entity to administer specific provisions of these regulations. Administration of any part of these regulations by another entity shall not relieve the community of its responsibilities pursuant to the participation requirements of the National Flood Insurance Program as set forth in the Code of Federal Regulations at 44 C.F.R. Section 59.22.

Section 21.9 - Duties and Responsibilities of the Floodplain Administrator [44 CFR 60.3]

The duties and responsibilities of the Floodplain Administrator shall include but are not limited to:

(A) Review applications for permits to determine whether proposed activities will be located in the Special Flood Hazard Area (SFHA).

(B) Interpret floodplain boundaries and provide available base flood elevation and flood hazard information.

(C) Review applications to determine whether proposed activities will be reasonably safe from flooding and require new construction and substantial improvements to meet the requirements of these regulations.

(D) Review applications to determine whether all necessary permits have been obtained from the Federal, State or local agencies from which prior or concurrent approval is required; in particular, permits from state agencies for any construction, reconstruction, repair, or alteration of a dam, reservoir, or waterway obstruction (including bridges, culverts, structures), any alteration of a watercourse, or any change of the course, current, or cross section of a stream or body of water, including any change to the 100-year frequency floodplain of free-flowing non-tidal waters of the State.

(E) Verify that applicants proposing an alteration of a watercourse have notified adjacent communities, the Department of Conservation and Recreation (Division of Dam Safety and Floodplain Management), and other appropriate agencies (VADEQ, USACE) and have submitted copies of such notifications to FEMA.

(F) Advise applicants for new construction or substantial improvement of structures that are located within an area of the Coastal Barrier Resources System established by the Coastal Barrier Resources Act that Federal flood insurance is not available on such structures; areas subject to this limitation are shown on Flood Insurance Rate Maps as Coastal Barrier Resource System Areas (CBRS) or Otherwise Protected Areas (OPA).

(G) Approve applications and issue permits to develop in flood hazard areas if the provisions of these regulations have been met, or disapprove applications if the provisions of these regulations have not been met.

(H) Inspect or cause to be inspected, buildings, structures, and other development for which permits have been issued to determine compliance with these regulations or to determine if non-compliance has occurred or violations have been committed.

(I) Review Elevation Certificates and require incomplete or deficient certificates to be corrected.

(J) Submit to FEMA, or require applicants to submit to FEMA, data and information necessary to maintain FIRMs, including hydrologic and hydraulic engineering analyses prepared by or for the Town of Colonial Beach, within six months after such data and information becomes available if the analyses indicate changes in base flood elevations.

(K) Maintain and permanently keep records that are necessary for the administration of these regulations, including:

(1) Flood Insurance Studies, Flood Insurance Rate Maps (including historic studies and maps and current effective studies and maps) and Letters of Map Change; and

(2) Documentation supporting issuance and denial of permits, Elevation Certificates, documentation of the elevation (in relation to the datum on the FIRM) to which structures have been floodproofed, inspection records, other required design certifications, variances, and records of enforcement actions taken to correct violations of these regulations.

(L) Enforce the provisions of these regulations, investigate violations, issue notices of violations or stop work orders, and require permit holders to take corrective action.

(M) Advise the Board of Zoning Appeals regarding the intent of these regulations and, for each application for a variance, prepare a staff report and recommendation.

(N) Administer the requirements related to proposed work on existing buildings:

1) Make determinations as to whether buildings and structures that are located in flood hazard areas and that are damaged by any cause have been substantially damaged.
2) Make reasonable efforts to notify owners of substantially damaged structures of the need to obtain a permit to repair, rehabilitate, or reconstruct. Prohibit the non-compliant repair of substantially damaged buildings except for temporary emergency protective measures necessary to secure a property or stabilize a building or structure to prevent additional damage.

(O) Undertake, as determined appropriate by the Floodplain Administrator due to the circumstances, other actions which may include but are not limited to: issuing press releases, public service announcements, and other public information materials related to permit requests and repair of damaged structures; coordinating with other Federal, State, and local agencies to assist with substantial damage determinations; providing owners of damaged structures information related to the proper repair of damaged structures in special flood hazard areas; and assisting property owners with documentation necessary to file claims for Increased Cost of Compliance coverage under NFIP flood insurance policies.

(P) Notify the Federal Emergency Management Agency when the corporate boundaries of the Town of Colonial Beach have been modified and:

(1) Provide a map that clearly delineates the new corporate boundaries or the new area for which the authority to regulate pursuant to these regulations has either been assumed or relinquished through annexation; and

(2) If the FIRM for any annexed area includes special flood hazard areas that have flood zones that have regulatory requirements that are not set forth in these regulations, prepare amendments to these regulations to adopt the FIRM and appropriate requirements, and submit the amendments to the governing body for adoption; such adoption shall take place at the same time as or prior to the date of annexation and a copy of the amended regulations shall be provided to Department of Conservation and Recreation (Division of Dam Safety and Floodplain Management) and FEMA.

(Q) Upon the request of FEMA, complete and submit a report concerning participation in the NFIP which may request information regarding the number of buildings in the SFHA, number of permits issued for development in the SFHA, and number of variances issued for development in the SFHA.

(R) It is the duty of the Community Floodplain Administrator to take into account flood, mudslide and flood-related erosion hazards, to the extent that they are known, in all official actions relating to land management and use throughout the entire jurisdictional area of the Community, whether or not those hazards have been specifically delineated geographically (e.g. via mapping or surveying).

Section 21.10 - Use and Interpretation of FIRMs [44 CFR 60.3]

The Floodplain Administrator shall make interpretations, where needed, as to the exact location of special flood hazard areas, floodplain boundaries, and floodway boundaries. The following shall apply to the use and interpretation of FIRMs and data:

(A) Where field surveyed topography indicates that adjacent ground elevations:

(1) Are below the base flood elevation in riverine SFHAs, or below the 1% storm surge elevation in coastal SFHAs, even in areas not delineated as a special flood hazard area on a FIRM, the area shall be considered as special flood hazard area and subject to the requirements of these regulations;

(2) Are above the base flood elevation and the area is labelled as a SFHA on the FIRM, the area shall be regulated as special flood hazard area unless the applicant obtains a Letter of Map Change that removes the area from the SFHA.

(B) In FEMA-identified special flood hazard areas where base flood elevation and floodway data have not been identified and in areas where FEMA has not identified SFHAs, any other flood hazard data available from a Federal, State, or other source shall be reviewed and reasonably used.

(C) Base flood elevations and designated floodway boundaries on FIRMs and in FISs shall take precedence over base flood elevations and floodway boundaries by any other sources if such sources show reduced floodway widths and/or lower base flood elevations.

(D) Other sources of data shall be reasonably used if such sources show increased base flood elevations and/or larger floodway areas than are shown on FIRMs and in FISs.

(E) If a Preliminary Flood Insurance Rate Map and/or a Preliminary Flood Insurance Study has been provided by FEMA:

(1) Upon the issuance of a Letter of Final Determination by FEMA, the preliminary flood hazard data shall be used and shall replace the flood hazard data previously provided from FEMA for the purposes of administering these regulations.

(2) Prior to the issuance of a Letter of Final Determination by FEMA, the use of preliminary flood hazard data shall be deemed the best available data pursuant to Section21.16(A)(3). and used where no base flood elevations and/or floodway areas are provided on the effective FIRM.

(3) Prior to issuance of a Letter of Final Determination by FEMA, the use of preliminary flood hazard data is permitted where the preliminary base flood elevations or floodway areas exceed the base flood elevations and/or designated floodway widths in existing flood hazard data provided by FEMA. Such preliminary data may be subject to change and/or appeal to FEMA.

Section 21.11 - Jurisdictional Boundary Changes [44 CFR 59.22, 65.3]

The County floodplain ordinance in effect on the date of annexation shall remain in effect and shall be enforced by the municipality for all annexed areas until the municipality adopts and enforces an ordinance which meets the requirements for participation in the National Flood Insurance Program. Municipalities with existing floodplain ordinances shall pass a resolution acknowledging and accepting responsibility for enforcing floodplain ordinance standards prior to annexation of any area containing identified flood hazards. If the FIRM for any annexed area includes special flood hazard areas that have flood zones that have regulatory requirements that are not set forth in these regulations, prepare amendments to these regulations to adopt the FIRM and appropriate requirements, and submit the amendments to the governing body for adoption; such adoption shall take place at the same time as or prior to the date of annexation and a copy of the amended regulations shall be provided to Department of Conservation and Recreation (Division of Dam Safety and Floodplain Management) and FEMA.

In accordance with the Code of Federal Regulations, Title 44 Subpart (B) Section 59.22 (a) (9) (v) all NFIP participating communities must notify the Federal Insurance Administration and optionally the State Coordinating Office in writing whenever the boundaries of the community have been modified by annexation or the community has otherwise assumed or no longer has authority to adopt and enforce floodplain management regulations for a particular area.

In order that all Flood Insurance Rate Maps accurately represent the community's boundaries, a copy of a map of the community suitable for reproduction, clearly delineating the new corporate limits or new area for which the community has assumed or relinquished floodplain management regulatory authority must be included with the notification.

Section 21.12 - District Boundary Changes

The delineation of any of the Floodplain Districts may be revised by the Town of Colonial Beach where natural or man-made changes have occurred and/or where more detailed studies have been conducted or undertaken by the U. S. Army Corps of Engineers or other qualified agency, or an individual documents the need for such change. However, prior to any such change, approval must be obtained from the Federal Emergency Management Agency. A completed LOMR is a record of this approval.

Section 21.13 - Interpretation of District Boundaries

Initial interpretations of the boundaries of the Floodplain Districts shall be made by the Zoning Officer. Should a dispute arise concerning the boundaries of any of the Districts, the Board of Zoning Appeals

shall make the necessary determination. The person questioning or contesting the location of the District boundary shall be given a reasonable opportunity to present his case to the Board and to submit his own technical evidence if he so desires.

Section 21.14 – Submitting Model Backed Technical Data [44 CFR 65.3]

A community's base flood elevations may increase or decrease resulting from physical changes affecting flooding conditions. As soon as practicable, but not later than six months after the date such information becomes available, a community shall notify the Federal Emergency Management Agency of the changes by submitting technical or scientific data. The Town of Colonial Beach may submit data via a LOMR. Such a submission is necessary so that upon confirmation of those physical changes affecting flooding conditions, risk premium rates and flood plain management requirements will be based upon current data.

Section 21.15 – Letters of Map Revision

When development in the floodplain will cause or causes a change in the base flood elevation, the applicant, including state agencies, must notify FEMA by applying for a Conditional Letter of Map Revision and then a Letter of Map Revision.

Example cases:

- Any development that causes a rise in the base flood elevations within the floodway.
- Any development occurring in Zones A1-30 and AE without a designated floodway, which will cause a rise of more than one foot in the base flood elevation.
- Alteration or relocation of a stream (including but not limited to installing culverts and bridges) *44 Code of Federal Regulations §65.3 and §65.6(a)(12)*

Section 21.16 - Description of Special Flood Hazard Districts [44 CFR 59.1, 60.3]

A. Basis of Districts

The various special flood hazard districts shall include the SFHAs. The basis for the delineation of these districts shall be the FIS and the FIRM for Westmoreland County, Virginia and Incorporated Areas prepared by the Federal Emergency Management Agency, dated May 17, 2022 and any subsequent revisions or amendments thereto.

The Town of Colonial Beach may identify and regulate local flood hazard or ponding areas that are not delineated on the FIRM. These areas may be delineated on a "Local Flood Hazard Map" using best available topographic data and locally derived information such as flood of record, historic high water marks or approximate study methodologies.

The boundaries of the SFHA Districts are established as shown on the FIRM which is declared to be a part of this ordinance and which shall be kept on file at the Town of Colonial Beach offices.

1. The **Floodway District** is in an **AE Zone** and is delineated, for purposes of this ordinance, using the criterion that certain areas within the floodplain must be capable of carrying the waters of the one percent annual chance flood without increasing the water surface elevation of that flood more than one (1) foot at any point. At the time of adoption of this Article, no Floodway was delineated by FEMA in the above-referenced FIS or on the accompanying FIRM, within town limits.

   The following provisions shall apply within the Floodway District of an AE zone [44 CFR 60.3(d)]:

   a. Within any floodway area, no encroachments, including fill, new construction, substantial improvements, or other development shall be permitted unless it has been demonstrated through hydrologic and hydraulic analysis performed in accordance with standard engineering practice that the proposed encroachment will not result in any increase in flood levels within the community during the occurrence of the base flood discharge. Hydrologic and hydraulic analyses shall be undertaken only by professional engineers or others of demonstrated qualifications, who shall certify that the technical methods used correctly reflect currently-accepted technical concepts. Studies, analyses, computations, etc., shall be submitted in sufficient detail to allow a thorough review by the Floodplain Administrator.

   Development activities which increase the water surface elevation of the base flood may be allowed, provided that the applicant first applies – with the Town of Colonial Beach's endorsement – for a Conditional Letter of Map Revision (CLOMR), and receives the approval of the Federal Emergency Management Agency.

   If Section 21-16 (A) (1) is satisfied, all new construction and substantial improvements shall comply with all applicable flood hazard reduction provisions of Sections 21-18, 21-19, 21-20 and 21-21.

   b. The placement of manufactured homes (mobile homes) is prohibited, except in an existing manufactured home (mobile home) park or subdivision. A replacement manufactured home may be placed on a lot in an existing manufactured home park or subdivision provided the anchoring, elevation, and encroachment standards are met.

2. The **AE, or AH Zones** on the FIRM accompanying the FIS shall be those areas for which one-

percent annual chance flood elevations have been provided and the floodway has **not** been delineated. The following provisions shall apply within an AE or AH zone [44 CFR 60.3(c)] where FEMA has provided base flood elevations[3]:

Until a regulatory floodway is designated, no new construction, substantial improvements, or other development (including fill) shall be permitted within the areas of special flood hazard, designated as Zones A1-30 and AE or AH on the FIRM, unless it is demonstrated that the cumulative effect of the proposed development, when combined with all other existing and anticipated development, will not increase the water surface elevation of the base flood more than one foot at any point within the Town of Colonial Beach.

Development activities in Zones Al-30 and AE or AH, on the Town of Colonial Beach's FIRM which increase the water surface elevation of the base flood by more than one foot may be allowed, provided that the applicant first applies – with the Town of Colonial Beach's endorsement – for a Conditional Letter of Map Revision, and receives the approval of the Federal Emergency Management Agency.

3. The **A Zone** on the FIRM accompanying the FIS shall be those areas for which no detailed flood profiles or elevations are provided, but the one percent annual chance floodplain boundary has been approximated. For these areas, the following provisions shall apply [44 CFR 60.3(b)]:

   The Approximated Floodplain District shall be that floodplain area for which no detailed flood profiles or elevations are provided, but where a one percent annual chance floodplain boundary has been approximated. Such areas are shown as Zone A on the maps accompanying the FIS. For these areas, the base flood elevations and floodway information from federal, state, and other acceptable sources shall be used, when available. Where the specific one percent annual chance flood elevation cannot be determined for this area using other sources of data, such as the U. S. Army Corps of Engineers Floodplain Information Reports, U. S. Geological Survey Flood-Prone Quadrangles, etc., then the applicant for the proposed use, development and/or activity shall determine this base flood elevation. For development proposed in the approximate floodplain the applicant must use technical methods that correctly reflect currently accepted practices, such as point on boundary, high water marks, or detailed methodologies hydrologic and hydraulic analyses. Studies, analyses, computations, etc., shall be submitted in sufficient detail to allow a thorough review by the Floodplain Administrator.

   The Floodplain Administrator reserves the right to require a hydrologic and hydraulic analysis for any development. When such base flood elevation data is utilized, the lowest floor shall be elevated no less than three (3) feet above the base flood level.

   During the permitting process, the Floodplain Administrator shall obtain:

   1) The elevation of the lowest floor (in relation to mean sea level), including the basement of all new and substantially improved structures; and,

   2) If the structure has been flood-proofed in accordance with the requirements of this article, the elevation (in relation to mean sea level) to which the structure has been

3 The requirement in 60.3(c)(10) only applies along rivers, streams, and other watercourses where FEMA has provided base flood elevations. The requirement does not apply along lakes, bays and estuaries, and the ocean coast.

flood-proofed.

Base flood elevation data shall be obtained from other sources or developed using detailed methodologies comparable to those contained in a FIS for subdivision proposals and other proposed development proposals (including manufactured home parks and subdivisions) that exceed fifty lots or five acres, whichever is the lesser.

4. The **AO Zone** on the FIRM accompanying the FIS shall be those areas of shallow flooding identified as AO on the FIRM. For these areas, the following provisions shall apply [44 CFR 60.3(c)]:

   a. All new construction and substantial improvements of residential structures shall have the lowest floor, including basement, elevated to or above the flood depth specified on the FIRM, above the highest adjacent grade at least as high as the depth number specified in feet on the FIRM plus three feet. If no flood depth number is specified, the lowest floor, including basement, shall be elevated no less than three feet above the highest adjacent grade.

   b. All new construction and substantial improvements of non-residential structures shall

      1) have the lowest floor, including basement, elevated to or above the flood depth specified on the FIRM, above the highest adjacent grade at least as high as the depth number specified in feet on the FIRM plus three feet. If no flood depth number is specified, the lowest floor, including basement, shall be elevated at least three feet above the highest adjacent grade; or,

      2) together with attendant utility and sanitary facilities be completely flood-proofed to the specified flood level so that any space below that level is watertight with walls substantially impermeable to the passage of water and with structural components having the capability of resisting hydrostatic and hydrodynamic loads and effects of buoyancy.

   c. Adequate drainage paths around structures on slopes shall be provided to guide floodwaters around and away from proposed structures.

5. The **Coastal A Zone [4] is labelled as AE on the FIRM; it is those areas that are seaward of the limit of moderate wave action (LiMWA) line.** As defined by the VA USBC, these areas are subject to wave heights between 1.5 feet and 3 feet. For these areas, the following provisions shall apply:

   Buildings and structures within this zone shall have the lowest floor elevated to or above the base flood elevation plus three feet of freeboard and must comply with the provisions in21.16(A)(2), 21.19 and 21.20.

6. The **VE or V Zones** on FIRMs accompanying the FIS shall be those areas that are known as Coastal High Hazard areas, extending from offshore to the inland limit of a primary frontal dune along an open coast or other areas subject to high velocity waves. For these areas, the following provisions shall apply [44 CFR 60.3(e)]:

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4 Instead of having a coastal A zone a community can include this area in the V zone, adopting these standards for Coastal A areas provides a higher degree of protection, reflects the level of surge risk seen in actual events, and helps ensure that buildings built now receive favorable insurance rates if FEMA does change their program requirements to include coastal A limitations. Right now the only provisions effecting this zone are found in the Virginia Building Code and are reflected in the language here.

a. All new construction and substantial improvements in Zones V and VE, including manufactured homes, shall be elevated on pilings or columns so that:

   1) The bottom of the lowest horizontal structural member of the lowest floor (excluding the pilings or columns) is elevated no less than three (3) feet above the base flood level if the lowest horizontal structural member is parallel to the direction of wave approach or elevated at least three feet above the base flood level if the lowest horizontal structural member is perpendicular to the direction of wave approach; and,

   2) The pile or column foundation and structure attached thereto is anchored to resist flotation, collapse, and lateral movement due to the effects of wind and water loads acting simultaneously on all building components. Wind and water loading values shall each have a one percent chance of being equalled or exceeded in any given year (one-percent annual chance).

b. A registered professional engineer or architect shall develop or review the structural design, specifications and plans for the construction, and shall certify that the design and methods of construction to be used are in accordance with accepted standards of practice for meeting the provisions 21-16(A)(6)(a).

c. The Floodplain Administrator shall obtain the elevation (in relation to mean sea level) of the bottom of the lowest horizontal structural member of the lowest floor (excluding pilings and columns) of all new and substantially improved structures in Zones V and VE. The Floodplain Management Administrator shall maintain a record of all such information.

d. All new construction shall be located landward of the reach of mean high tide.

e. All new construction and substantial improvements shall have the space below the lowest floor either free of obstruction or constructed with non-supporting breakaway walls, open wood-lattice work, or insect screening intended to collapse under wind and water loads without causing collapse, displacement, or other structural damage to the elevated portion of the building or supporting foundation system. For the purpose of this section, a breakaway wall shall have a design safe loading resistance of not less than 10 and no more than 20 pounds per square foot. Use of breakaway walls which exceed a design safe loading resistance of 20 pounds per square foot (either by design or when so required by local codes) may be permitted only if a registered professional engineer or architect certifies that the designs proposed meet the following conditions:

   1) Breakaway wall collapse shall result from water load less than that which would occur during the base flood; and

   2) The elevated portion of the building and supporting foundation system shall not be subject to collapse, displacement, or other structural damage due to the effects of wind and water loads acting simultaneously on all building components (structural and non-structural). Maximum wind and water loading values to be used in this determination shall each have a one percent chance of being equalled or exceeded in any given year.

f. The enclosed space below the lowest floor shall be used solely for parking of vehicles, building access, or storage. Such space shall not be partitioned into multiple rooms, temperature-controlled, or used for human habitation. *The enclosed space shall be less*

than 300 square feet.[5]

g. The use of fill for structural support of buildings is prohibited. When non-structural fill is proposed in a coastal high hazard area, appropriate engineering analyses shall be conducted to evaluate the impacts of the fill prior to issuance of a development permit.

h. The man-made alteration of sand dunes and mangrove stands, which would increase potential flood damage, is prohibited.

7. *The mapped floodplain includes all of the above regions and also the regions designated as having a 0.2 percent annual chance of flooding on any flood map or flood insurance study. In this area no emergency service, medical service, or governmental records storage shall be allowed except by special exception using the variance process.*[6]

Section 21.17 - Overlay Concept

The Floodplain Districts described above shall be overlays to the existing underlying districts as shown on the Official Zoning Ordinance Map, and as such, the provisions for the floodplain districts shall serve as a supplement to the underlying district provisions.

If there is any conflict between the provisions or requirements of the Floodplain Districts and those of any underlying district, the more restrictive provisions and/or those pertaining to the floodplain districts shall apply.

In the event any provision concerning a Floodplain District is declared inapplicable as a result of any legislative or administrative actions or judicial decision, the basic underlying provisions shall remain applicable.

DISTRICT PROVISIONS [44 CFR 59.22, 60.2, 60.3]

Section 21.18 – Permit and Application Requirements

A. Permit Requirement

All uses, activities, and development occurring within any floodplain district, including placement of manufactured homes, shall be undertaken only upon the issuance of a zoning permit. Such development shall be undertaken only in strict compliance with the provisions of this Ordinance and with all other applicable codes and ordinances, as amended, such as the Virginia Uniform Statewide Building Code (VA USBC) and the Town of Colonial Beach Subdivision Regulations. Prior to the issuance of any such permit, the Floodplain Administrator shall require all applications to include compliance with all applicable state and federal laws and shall review all sites to assure they are reasonably safe from flooding. Under no circumstances shall any use, activity, and/or development adversely affect the capacity of the channels or floodways of any watercourse, drainage ditch, or any other drainage facility or system.

B. Site Plans and Permit Applications

5 Spaces that are 300 square feet or more trigger very high insurance rates, so limiting the size of these spaces to less than 300 square feet is a higher standard that can make the structure more affordable to insure.

6 This limitation on the use of the 0.2 percent floodplain is not required by NFIP regulations but is an accepted standard for critical facilities in emergency management. Critical facilities that are built in mapped floodplain might not be eligible for rebuilding assistance after a disaster, therefore DCR recommends this provision to ensure that any decision made to build in these circumstances is carefully considered.

All applications for development within any floodplain district and all building permits issued for the floodplain shall incorporate the following information:

1. The elevation of the Base Flood at the site.

2. For structures to be elevated, the elevation of the lowest floor (including basement) or, in V zones, the lowest horizontal structural member.

3. For structures to be flood-proofed (non-residential only), the elevation to which the structure will be flood-proofed.

4. Topographic information showing existing and proposed ground elevations.

Section 21.19 - General Standards

The following provisions shall apply to all permits:

A. New construction and substantial improvements shall be according to Section 21.16 of this ordinance and the VA USBC, and anchored to prevent flotation, collapse or lateral movement of the structure.

B. Manufactured homes shall be anchored to prevent flotation, collapse, or lateral movement. Methods of anchoring may include, but are not limited to, use of over-the-top or frame ties to ground anchors. This standard shall be in addition to and consistent with applicable state anchoring requirements for resisting wind forces.

C. New construction and substantial improvements shall be constructed with materials and utility equipment resistant to flood damage.

D. New construction or substantial improvements shall be constructed by methods and practices that minimize flood damage.

E. Electrical, heating, ventilation, plumbing, air conditioning equipment and other service facilities, including duct work, shall be designed and/or located so as to prevent water from entering or accumulating within the components during conditions of flooding.

F. New and replacement water supply systems shall be designed to minimize or eliminate infiltration of flood waters into the system.

G. New and replacement sanitary sewage systems shall be designed to minimize or eliminate infiltration of flood waters into the systems and discharges from the systems into flood waters.

H. On-site waste disposal systems shall be located and constructed to avoid impairment to them or contamination from them during flooding.

In addition to provisions A – H above, in all special flood hazard areas, the additional provisions shall apply:

I. Prior to any proposed alteration or relocation of any channels or of any watercourse, stream, etc., within this jurisdiction a permit shall be obtained from the U. S. Corps of Engineers, the Virginia Department of Environmental Quality, and the Virginia Marine Resources Commission (a joint permit application is available from any of these organizations). Furthermore, in riverine areas, notification of the proposal shall be given by the applicant to all affected adjacent jurisdictions, the Department of Conservation and Recreation (Division of Dam Safety and Floodplain

Management), other required agencies, and the Federal Emergency Management Agency.

J. The flood carrying capacity within an altered or relocated portion of any watercourse shall be maintained.

Section 21.20 - Elevation and Construction Standards [44 CFR 60.3]

In all identified flood hazard areas where base flood elevations have been provided in the FIS or generated by a certified professional in accordance with Section 21.16(A)(2), the following provisions shall apply:

A. Residential Construction

New construction or substantial improvement of any residential structure (including manufactured homes) in Zones A1-30, AE, AH and A with detailed base flood elevations shall have the lowest floor, including basement, elevated no less than three feet (3) above the base flood level. See Section 21.16(A)(5) and Section 21.16(A)(6) for requirements in the Coastal A and VE zones.

B. Non-Residential Construction

1. New construction or substantial improvement of any commercial, industrial, or non-residential building (or manufactured home) shall have the lowest floor, including basement, elevated no less than three feet above the base flood elevation. See Section 21.16(A)(5) and Section 21.16(A)(6) for requirements in the Coastal A, VE, and V zones.

2. Non-residential buildings located in all A1-30, AE, and AH zones may be flood-proofed in lieu of being elevated provided that all areas of the building components below the elevation corresponding to the BFE plus *two feet*[7]are water tight with walls substantially impermeable to the passage of water, and use structural components having the capability of resisting hydrostatic and hydrodynamic loads and the effect of buoyancy. A registered professional engineer or architect shall certify that the standards of this subsection are satisfied. Such certification, including the specific elevation (in relation to mean sea level) to which such structures are floodproofed, shall be maintained by the Zoning Administrator.

C. Space Below the Lowest Floor

In zones A, AE, AH, AO, and A1-A30, fully enclosed areas, of new construction or substantially improved structures, which are below the regulatory flood protection elevation shall:

1. Not be designed or used for human habitation, but shall only be used for parking of vehicles, building access, or limited storage of maintenance equipment used in connection with the premises. Access to the enclosed area shall be the minimum necessary to allow for parking of vehicles (garage door) or limited storage of maintenance equipment (standard exterior door), or entry to the living area (stairway or elevator).

2. Be constructed entirely of flood resistant materials below the regulatory flood protection elevation;

7 If your community has adopted the recommended freeboard you might need to change this provision to be consistent or higher than the freeboard otherwise required. Please note that the minimum requirements are BFE plus one foot – two feet of freeboard is the recommended minimum.

3. Include measures to automatically equalize hydrostatic flood forces on walls by allowing for the entry and exit of floodwaters. To meet this requirement, the openings must either be certified by a professional engineer or architect or meet the following minimum design criteria:

    a. Provide a minimum of two openings on different sides of each enclosed area subject to flooding.

    b. The total net area of all openings must be at least one (1) square inch for each square foot of enclosed area subject to flooding.

    c. If a building has more than one enclosed area, each area must have openings to allow floodwaters to automatically enter and exit.

    d. The bottom of all required openings shall be no higher than one (1) foot above the adjacent grade.

    e. Openings may be equipped with screens, louvers, or other opening coverings or devices, provided they permit the automatic flow of floodwaters in both directions.

    f. Foundation enclosures made of flexible skirting are not considered enclosures for regulatory purposes, and, therefore, do not require openings. Masonry or wood underpinning, regardless of structural status, is considered an enclosure and requires openings as outlined above.

D. Accessory Structures

1. Accessory structures in the SFHA shall comply with the elevation requirements and other requirements of Article IV, Section 4.3.B or, if not elevated or dry floodproofed, shall:

    a. Not be used for human habitation;

    b. Be limited to no more than *600 square feet*[8] in total floor area;

    c. Be useable only for parking of vehicles or limited storage;

    d. Be constructed with flood damage-resistant materials below the base flood elevation;

    e. Be constructed and placed to offer the minimum resistance to the flow of floodwaters;

    f. Be anchored to prevent flotation;

    g. Have electrical service and mechanical equipment elevated to or above the base flood elevation;

    h. Shall be provided with flood openings which shall meet the following criteria:
        (i) There shall be a minimum of two flood openings on different sides of each enclosed area; if a building has more than one enclosure below the lowest floor, each such enclosure shall have flood openings on exterior walls.

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8 This is the minimum size restriction set by FEMA Region III, but a community could choose a higher standard and limit accessory structures to a size less than 600 square feet. However, a variance could be issued for larger accessory structures, not to exceed 600 square feet. If a smaller size limit is chosen, additional language would be required in Article VI: Variances - see Footnote 23. The chosen size restriction should also be reflected in Article IV, Section 4.3.D.2.b, Article VI, Section M, and Article VIII-Glossary in the definition of "Appurtenant or accessory structure".

(ii) The total net area of all flood openings shall be at least 1 square inch for each square foot of enclosed area (non-engineered flood openings), or the flood openings shall be engineered flood openings that are designed and certified by a licensed professional engineer to automatically allow entry and exit of floodwaters; the certification requirement may be satisfied by an individual certification or an Evaluation Report issued by the ICC Evaluation Service, Inc.

(iii) The bottom of each flood opening shall be 1 foot or less above the higher of the interior floor or grade, or the exterior grade, immediately below the opening.

(iv) Any louvers, screens or other covers for the flood openings shall allow the automatic flow of floodwaters into and out of the enclosed area.

i. *A signed Declaration of Land Restriction (Non-Conversion Agreement) shall be recorded on the property deed.*[9]

E. Standards for Manufactured Homes and Recreational Vehicles

1. In zones A, AE, AH, and AO, all manufactured homes placed, or substantially improved, on individual lots or parcels, must meet all the requirements for new construction, including the elevation and anchoring requirements in Section 21.19 as well as Sections 21.20 in A or AE zones, 21.16(A)(5) in Coastal A zones, and 21.16(A)(6) in VE zones.

2. All recreational vehicles placed on sites must either:

a. Be on the site for fewer than 180 consecutive days, be fully licensed and ready for highway use (a recreational vehicle is ready for highway use if it is on its wheels or jacking system, is attached to the site only by quick disconnect type utilities and security devices and has no permanently attached additions); or

b. Meet all the requirements for manufactured homes in Section 21.20(D)(1).

Section 21.21 - Standards for Subdivision Proposals

A. All subdivision proposals shall be consistent with the need to minimize flood damage;

B. All subdivision proposals shall have public utilities and facilities such as sewer, gas, electrical and water systems located and constructed to minimize flood damage;

C. All subdivision proposals shall have adequate drainage provided to reduce exposure to flood hazards, and

D. Base flood elevation data shall be obtained from other sources or developed using detailed methodologies, hydraulic and hydrologic analysis, comparable to those contained in a Flood Insurance Study for subdivision proposals and other proposed development proposals (including manufactured home parks and subdivisions) that exceed fifty lots or five acres, whichever is the lesser.

9 A non-conversion agreement is strongly recommended, especially if a variance is being issued for an accessory structure. However, the non-conversion agreement is not a requirement.

Section 21.22 - Existing Structures in Floodplain Areas

Any structure or use of a structure or premises must be brought into conformity with these provisions when it is changed, repaired, or improved[10] unless one of the following exceptions is established before the change is made:

A. The floodplain manager has determined that:
   1. Change is not a substantial repair or substantial improvement AND
   2. No new square footage is being built in the floodplain that is not complaint AND
   3. No new square footage is being built in the floodway AND
   4. The change complies with this ordinance and the VA USBC AND
   5. The change, when added to all the changes made during a rolling 5-year period does not constitute 50% of the structure's value.

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B. The changes are required to comply with a citation for a health or safety violation.

C. The structure is a historic structure and the change required would impair the historic nature of the structure.

Section 21.23 - Variances: Factors to be Considered [44 CFR 60.6]

Variances shall be issued only upon (i) a showing of good and sufficient cause, (ii) after the Board of Zoning Appeals has determined that failure to grant the variance would result in exceptional hardship to the applicant, and (iii) after the Board of Zoning Appeals has determined that the granting of such variance will not result in (a) unacceptable or prohibited increases in flood heights, (b) additional threats to public safety, (c) extraordinary public expense; and will not (d) create nuisances, (e) cause fraud or victimization of the public, or (f) conflict with local laws or ordinances.

While the granting of variances generally is limited to a lot size less than one-half acre, deviations from that limitation may occur. However, as the lot size increases beyond one-half acre, the technical justification required for issuing a variance increases. Variances may be issued by the Board of Zoning Appeals for new construction and substantial improvements to be erected on a lot of one-half acre or less in size contiguous to and surrounded by lots with existing structures constructed below the base flood level, in conformance with the provisions of this section.

Variances may be issued for new construction and substantial improvements and for other development necessary for the conduct of a functionally dependent use provided that the criteria of this section are met, and the structure or other development is protected by methods that minimize flood damages during the base flood and create no additional threats to public safety.

In passing upon applications for variances, the Board of Zoning Appeals shall satisfy all relevant factors and procedures specified in other sections of the zoning ordinance and consider the following additional factors:

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10 The assumption that all buildings will be brought in to compliance unless an exception is found is not required by the federal regulations, it is a recommended change for the sake of administrative efficiency and improved compliance.

A. The danger to life and property due to increased flood heights or velocities caused by encroachments. No variance shall be granted for any proposed use, development, or activity within any Floodway District that will cause any increase in the one percent (1%) chance flood elevation.

B. The danger that materials may be swept on to other lands or downstream to the injury of others.

C. The proposed water supply and sanitation systems and the ability of these systems to prevent disease, contamination, and unsanitary conditions.

D. The susceptibility of the proposed facility and its contents to flood damage and the effect of such damage on the individual owners.

E. The importance of the services provided by the proposed facility to the community.

F. The requirements of the facility for a waterfront location.

G. The availability of alternative locations not subject to flooding for the proposed use.

H. The compatibility of the proposed use with existing development and development anticipated in the foreseeable future.

I. The relationship of the proposed use to the comprehensive plan and floodplain management program for the area.

J. The safety of access by ordinary and emergency vehicles to the property in time of flood.

K. The expected heights, velocity, duration, rate of rise, and sediment transport of the flood waters expected at the site.

L. The historic nature of a structure. Variances for repair or rehabilitation of historic structures may be granted upon a determination that the proposed repair or rehabilitation will not preclude the structure's continued designation as a historic structure and the variance is the minimum necessary to preserve the historic character and design of the structure.

M. No variance shall be granted for an accessory structure exceeding 600 square feet.[11]

N. Such other factors which are relevant to the purposes of this ordinance.

The Board of Zoning Appeals may refer any application and accompanying documentation pertaining to any request for a variance to any engineer or other qualified person or agency for technical assistance in evaluating the proposed project in relation to flood heights and velocities, and the adequacy of the plans for flood protection and other related matters.

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11 If a size restriction for accessory structures that is less than 600 square feet is chosen, variances could be issued for structures larger than that size restriction, not to exceed 600 square feet. In this case, additional language is required under Article VI, Section M. Suggested language:

> "Accessory structures within the SFHA that are greater than {insert size restriction} square feet, do not exceed 600 square feet, and do not meet all requirements for elevating or dry floodproofing, as set out in Article IV, Section 4.3.B, must secure a variance in accordance with the floodplain ordinance before a permit is issued. The structure must comply with accessory structure criteria in Article IV, Section 4.3.D.2. No variance shall be granted for an accessory structure exceeding 600 square feet. *(Note: See Article IV, Section 4.3.D.2).*"

Variances shall be issued only after the Board of Zoning Appeals has determined that the granting of such will not result in (a) unacceptable or prohibited increases in flood heights, (b) additional threats to public safety, (c) extraordinary public expense; and will not (d) create nuisances, (e) cause fraud or victimization of the public, or (f) conflict with local laws or ordinances.

Variances shall be issued only after the Board of Zoning Appeals has determined that the variance will be the minimum required to provide relief.

The Board of Zoning Appeals shall notify the applicant for a variance, in writing that the issuance of a variance to construct a structure below the one percent (1%) chance flood elevation (a) increases the risks to life and property and (b) will result in increased premium rates for flood insurance.

A record shall be maintained of the above notification as well as all variance actions, including justification for the issuance of the variances. Any variances that are issued shall be noted in the annual or biennial report submitted to the Federal Insurance Administrator.

These terms shall be added to Article 20-Definitions

A. Appurtenant or accessory structure - A non-residential structure which is on the same parcel of property as the principal structure and the use of which is incidental to the use of the principal structure. Accessory structures not to exceed 200 sq. ft. for purposes of floodplain protection/requirements.

B. Base flood - The flood having a one percent chance of being equalled or exceeded in any given year. Also referred to as the 100-year flood.

C. Base flood elevation - The water surface elevations of the base flood, that is, the flood level that has a one percent or greater chance of occurrence in any given year. The water surface elevation of the base flood in relation to the datum specified on the community's Flood Insurance Rate Map. For the purposes of this ordinance, the base flood is the 1% annual chance flood.

D. Basement - Any area of the building having its floor sub-grade (below ground level) on all sides.

E. Board of Zoning Appeals - The board appointed to review appeals made by individuals with regard to decisions of the Zoning Administrator in the interpretation of this ordinance.

F. Coastal A Zone - Flood hazard areas that have been delineated as subject to wave heights between 1.5 feet and 3 feet.

G. Development - Any man-made change to improved or unimproved real estate, including, but not limited to, buildings or other structures, *temporary structures*, mining, dredging, filling, grading, paving, excavation, drilling *or other land-disturbing activities* or *permanent or temporary* storage of equipment or materials.

H. Elevated building - A non-basement building built to have the lowest floor elevated above the ground level by means of solid foundation perimeter walls, pilings, or columns (posts and piers).

I. Encroachment - The advance or infringement of uses, plant growth, fill, excavation, buildings, permanent structures, or development into a floodplain, which may impede or alter the flow capacity of a floodplain.

J. Existing construction - structures for which the "start of construction" commenced September 18, 1987. "Existing construction" may also be referred to as "existing structures" and "pre-FIRM."

K. Flood or flooding -

1. A general or temporary condition of partial or complete inundation of normally dry land areas from
   a. the overflow of inland or tidal waters; or,
   b. the unusual and rapid accumulation or runoff of surface waters from any source.
   c. mudflows which are proximately caused by flooding as defined in paragraph (1) (b) of this definition and are akin to a river of liquid and flowing mud on the surfaces of normally dry land areas, as when earth is carried by a current of water and deposited along the path of the current.
2. The collapse or subsidence of land along the shore of a lake or other body of water as a result of erosion or undermining caused by waves or currents of water exceeding anticipated cyclical levels or suddenly caused by an unusually high water level in a natural body of water, accompanied by a severe storm, or by an unanticipated force of nature such as flash flood or an abnormal tidal surge, or by some similarly unusual and unforeseeable event which results in flooding as defined in paragraph 1 (a) of this definition.

L. Flood Insurance Rate Map (FIRM) - an official map of a community, on which the Federal Emergency Management Agency has delineated both the special hazard areas and the risk premium zones applicable to the community. A FIRM that has been made available digitally is called a Digital Flood Insurance Rate Map (DFIRM).

M. Flood Insurance Study (FIS) – a report by FEMA that examines evaluates and determines flood hazards and, if appropriate, corresponding water surface elevations, or an examination, evaluation and determination of mudflow and/or flood-related erosion hazards.

N. Floodplain or flood-prone area - Any land area susceptible to being inundated by water from any source.

O. Flood proofing - any combination of structural and non-structural additions, changes, or adjustments to structures which reduce or eliminate flood damage to real estate or improved real property, water and sanitary facilities, structures, and their contents.

P. Floodway - The channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than one foot at any point within the community.

Q. Freeboard - A factor of safety usually expressed in feet above a flood level for purposes of floodplain management. "Freeboard" tends to compensate for the many unknown factors that could contribute to flood heights greater than the height calculated for a selected size flood and floodway conditions, such as wave action, bridge openings, and the hydrological effect of urbanization in the watershed.

R. Functionally dependent use - A use which cannot perform its intended purpose unless it is located or carried out in close proximity to water. This term includes only docking facilities, port facilities that are necessary for the loading and unloading of cargo or passengers, and shipbuilding and ship repair facilities, but does not include long-term storage or related manufacturing facilities.

S. Highest adjacent grade - the highest natural elevation of the ground surface prior to construction next to the proposed walls of a structure.

T. Historic structure - Any structure that is:

1. Listed individually in the National Register of Historic Places (a listing maintained by the Department of Interior) or preliminarily determined by the Secretary of the Interior as meeting the requirements for individual listing on the National Register;
2. Certified or preliminarily determined by the Secretary of the Interior as contributing to the historical significance of a registered historic district or a district preliminarily determined by the Secretary to qualify as a registered historic district;
3. Individually listed on a state inventory of historic places in states with historic preservation programs which have been approved by the Secretary of the Interior; or,
4. Individually listed on a local inventory of historic places in communities with historic preservation programs that have been certified either:
   a. By an approved state program as determined by the Secretary of the Interior; or,
   b. Directly by the Secretary of the Interior in states without approved programs.

U. Hydrologic and Hydraulic Engineering Analysis – Analyses performed by a *licensed* professional engineer, in accordance with standard engineering practices that are accepted by the Virginia Department of Conservation and Recreation and FEMA, used to determine the *base flood*, other frequency floods, *flood* elevations, *floodway* information and boundaries, and *flood* profiles.

V. Letters of Map Change (LOMC) - A Letter of Map Change is an official FEMA determination, by letter, that amends or revises an effective *Flood Insurance Rate Map* or *Flood Insurance Study*. Letters of Map Change include:

Letter of Map Amendment (LOMA): An amendment based on technical data showing that a property was incorrectly included in a designated *special flood hazard area*. A LOMA amends the current effective *Flood Insurance Rate Map* and establishes that a Land as defined by meets and bounds or *structure* is not located in a *special flood hazard area*.

Letter of Map Revision (LOMR): A revision based on technical data that may show changes to *flood zones*, *flood* elevations, *floodplain* and *floodway* delineations, and planimetric features. A Letter of Map Revision Based on Fill (LOMR-F), is a determination that a *structure* or parcel of land has been elevated by fill above the *base flood elevation* and is, therefore, no longer exposed to *flooding* associated with the *base flood*. In order to qualify for this determination, the fill must have been permitted and placed in accordance with the *community*'s floodplain management regulations.

Conditional Letter of Map Revision (CLOMR): A formal review and comment as to whether a proposed *flood* protection project or other project complies with the minimum NFIP requirements for such projects with respect to delineation of *special flood hazard areas*. A CLOMR does not revise the effective *Flood Insurance Rate Map* or *Flood Insurance Study*.

W. Lowest adjacent grade - the lowest natural elevation of the ground surface next to the walls of a structure.

X. Lowest floor - The lowest floor of the lowest enclosed area (including basement). An unfinished or flood-resistant enclosure, usable solely for parking of vehicles, building access or storage in an area other than a basement area is not considered a building's lowest floor; provided, that such enclosure is not built so as to render the structure in violation of the applicable non-elevation design requirements of Federal Code 44CFR §60.3.

Y. Manufactured home - A structure, transportable in one or more sections, which is built on a permanent chassis and is designed for use with or without a permanent foundation when connected to the required utilities. For floodplain management purposes the term "manufactured home" also includes park trailers, travel trailers, and other similar vehicles placed on a site for greater than 180 consecutive days.

Z. Manufactured home park or subdivision - a parcel (or contiguous parcels) of land divided into two or more manufactured home lots for rent or sale.

AA. Mean Sea Level - for purposes of the National Flood Insurance Program, the National Geodetic Vertical Datum (NGVD) of 1929 or the North American Vertical Datum (NAVD) of 1988 to which base flood elevations shown on the Town of Colonial Beach's FIRM are referenced.

BB. New construction - For the purposes of determining insurance rates, structures for which the "start of construction" commenced on or after September 18, 1987 and includes any subsequent improvements to such structures. For floodplain management purposes, *new construction* means structures for which the *start of construction* commenced on or after the effective date of a floodplain management regulation adopted by a community and includes any subsequent improvements to such structures.

CC. Post-FIRM structures - A structure for which construction or substantial improvement occurred after September 18, 1987.

DD. Pre-FIRM structures - A structure for which construction or substantial improvement occurred on or before September 18, 1987.

EE. Primary frontal dune - a continuous or nearly continuous mound or ridge of sand with relatively steep seaward and landward slopes immediately landward and adjacent to the beach and subject to erosion and overtopping from high tides and waves during major coastal storms. The inland limit of the primary frontal dune occurs at the point where there is a distinct change from a relatively steep slope to a relatively mild slope.

FF. Recreational vehicle - A vehicle which is
1. built on a single chassis;
2. 400 square feet or less when measured at the largest horizontal projection;
3. designed to be self-propelled or permanently towable by a light duty truck; and,
4. designed primarily not for use as a permanent dwelling but as temporary living quarters for recreational camping, travel, or seasonal use.

GG. Repetitive Loss Structure – A building covered by a contract for flood insurance that has incurred flood-related damages on two occasions in a 10-year period, in which the cost of the repair, on the average, equalled or exceeded 25 percent of the market value of the structure at the time of each such flood event; and at the time of the second incidence of flood-related damage, the contract for flood insurance contains increased cost of compliance coverage.

HH. Severe repetitive loss structure - a structure that: (a) Is covered under a contract for flood insurance made available under the NFIP; and (b) Has incurred flood related damage – (i) For which 4 or more separate claims payments have been made under flood insurance coverage with the amount of each such claim exceeding $5,000, and with the cumulative amount of such claims payments exceeding $20,000; or (ii) For which at least 2 separate claims payments have been made under such coverage, with the cumulative amount of such claims exceeding the market value of the insured structure.

II. Shallow flooding area – A special flood hazard area with base flood depths from one to three feet where a clearly defined channel does not exist, where the path of flooding is unpredictable and indeterminate, and where velocity flow may be evident. Such flooding is characterized by ponding or sheet flow.

JJ. Special flood hazard area - The land in the floodplain subject to a one (1%) percent or greater chance of being flooded in any given year as determined in Section 21.16 of this ordinance.

KK. Start of construction - For other than new construction and substantial improvement, under the Coastal Barriers Resource Act (P.L. – 97-348), means the date the building permit was issued, provided the actual start of construction, repair, reconstruction, rehabilitation, addition, placement, substantial improvement or other improvement was within 180 days of the permit date. The actual start means either the first placement of permanent construction of a structure on a site, such as the pouring of slab or footings, the installation of piles, the construction of columns, or any work beyond the stage of excavation; or the placement of a manufactured home on a foundation. Permanent construction does not include land preparation, such as clearing, grading and filling; nor does it include the installation of streets and/or walkways; nor does it include excavation for a basement, footings, piers, or foundations or the erection of temporary forms; nor does it include the installation on the property of accessory buildings, such as garages or sheds not occupied as dwelling units or not part of the main structure. For a substantial improvement, the actual start of the construction means the first alteration of any wall, ceiling, floor, or other structural part of a building, whether or not that alteration affects the external dimensions of the building.

LL. Structure - for floodplain management purposes, a walled and roofed building, including a gas or liquid storage tank, that is principally above ground, as well as a manufactured home.

MM. Substantial damage - Damage of any origin sustained by a structure whereby the cost of restoring the structure to its before damaged condition would equal or exceed 50 percent of the market value of the structure before the damage occurred. *It also means flood-related damages sustained by a structure on two occasions in a 10-year period, in which the cost of the repair, on the average, equals or exceeds 25 percent of the market value of the structure at the time of each such flood event.*

NN. Substantial improvement - Any reconstruction, rehabilitation, addition, or other improvement of a structure, the cost of which equals or exceeds 50 percent of the market value of the structure before the *start of construction* of the improvement. The term does not, however, include either:

1. Any project for improvement of a structure to correct existing violations of state or local health, sanitary, or safety code specifications which have been identified by the local code enforcement official and which are the minimum necessary to assure safe living conditions, or
2. Any alteration of a *historic structure*, provided that the alteration will not preclude the structure's continued designation as a *historic structure*.
3. Historic structures undergoing repair or rehabilitation that would constitute a substantial improvement as defined above, must comply with all ordinance requirements that do not preclude the structure's continued designation as a historic structure. Documentation that a specific ordinance requirement will cause removal of the structure from the National Register of Historic Places or the State Inventory of Historic places must be obtained from the Secretary of the Interior or the State Historic Preservation Officer. Any exemption from ordinance requirements will be the minimum necessary to preserve the historic character and design of the structure.

OO. Violation - the failure of a structure or other development to be fully compliant with the community's floodplain management regulations. A structure or other development without the elevation certificate, other certifications, or other evidence of compliance required in this ordinance is presumed to be in violation until such time as that documentation is provided.

PP. Watercourse - A lake, river, creek, stream, wash, channel or other topographic feature on or over which waters flow at least periodically. Watercourse includes specifically designated areas in which substantial flood damage may occur.

SECTION 21.24- ENACTMENT[12]

Enacted and ordained this ____ day of _____, 20____. This ordinance, number 724___ of The Town of Colonial Beach, Virginia, shall become effective upon passage.

_____
Signature

_____
Title

_____
Attested

12 This section can be customized based upon a community's preferences. The model ordinance contains this section as FEMA requires an ordinance to have signatures from the community, either elected officials or administrators, showing that the ordinance has been officially adopted. FEMA also requires a date of adoption and an ordinance number.

Colonial Beach
VIRGINIA

TOWN OF COLONIAL BEACH COMPREHENSIVE PLAN

2020 - 2030

Colonial Beach is an attractive, historical beach town committed to family, business, the arts, and healthy lifestyle.

Vision Statement for Colonial Beach 2020 - 2030

The Comprehensive Plan has been derived from many community meetings and direct input from the people who live in Colonial Beach. The action plan referenced at the end of the document is a culmination of all the ideas put forth by residents and is discussed in length throughout the document.

Contents

Prologue to the Comprehensive Plan 2030

The Comprehensive Plan expresses and demonstrates how the members of the Planning Commission and the Town Council can influence change or change the trends for the benefit of all residents. These leaders hold the responsibility of responding to the residents' needs and priorities for the Town. As stewards of the Comprehensive Plan, Planning Commissioners and Town Council members, have the responsibility toward achievement of those goals adopted into the Comprehensive Plan.

The Vision for 2030, "Colonial Beach is an attractive, historical beach town committed to family, business, the arts and a healthy lifestyle!", will require passion, persistence, knowledge, and willingness to act. As a Vision-driven plan, it is important to keep the Vision always in the formation of definitive enactment of goals!

The Comprehensive Plan identifies the relationships between significant factors such as population, natural resources, building structures, economic base, preservation, transportation, and land use. All of which individually and together affect the overall development and growth of the community.

This Comprehensive Plan was based on data obtained from residents, multiple government, and private resources. The 2020 Census data will likely refine and re-prioritize some of the goals and objectives outlined. It is a living document which all citizens are urged to review and participate in its implementation, thus moving Colonial Beach to a new level of health, wellness, economic growth, and community!

To all who contributed to this Comprehensive Plan:

The Planning Commission thanks all citizens, Town Council members and Town staff for your contributions and service to assist in the development of this Comprehensive Plan.

"The Art of Thanksgiving is thanksliving. It is gratitude in action! In gratitude for your own fortune you must render in return some sacrifice of your life for other life!" - A. Schweitzer, Philosopher

About the Comprehensive Planning process

The Comprehensive Plan is mandated by State Law. It is a summary of ideas, needs, and priorities directly from the citizenry of the Town collected through surveys, neighborhood, and organizational membership meetings. It includes a careful analysis of existing and future conditions and lays out an action plan for improvements and developments that will affect local land use. This update of the 2009-2029 Comprehensive Plan is the beginning of a new phase of growth for Colonial Beach.

Adoption of the plan

This plan was adopted on September 22, 2021 (see Appendix A).

Code of Virginia

§ 15.2-2223. Comprehensive plan to be prepared and adopted; scope and purpose.

A. The local planning commission shall prepare and recommend a comprehensive plan for the physical development of the territory within its jurisdiction and every governing body shall adopt a comprehensive plan for the territory under its jurisdiction.

Procedures to be followed

- The Planning Commission (PC) notifies Town citizens of a public hearing to be held on the plan. (15.2-2204)
- After a public hearing the commission may approve, amend and approve, or disapprove the plan. (15.2-2204)
- Upon approval the PC forwards a certified copy to the Town Council for review.
- The Town Council will hold a public hearing in consideration of the plan, or part thereof, and shall approve and adopt, amend and adopt, or disapprove, if it is disapproved, or a part thereof, the plan shall be returned to the PC with a written statement of reasons for disapproval within 90 days of receipt of the certification.
- The PC will have 60 days to review and adjust as requested. (15.2-2229)
- The Planning Commission reviews the plan consistently for changes and every five years makes recommendations for updates following this process.

Legal status (15.2-2232)

- The Comprehensive Plan does not have the legal status of a zoning ordinance. (Check Code of Virginia 15.2- 2232 for exceptions)
- Communications with objections should be in writing to governing body.
- State code updates are to be followed by the governing body and Planning Commission.

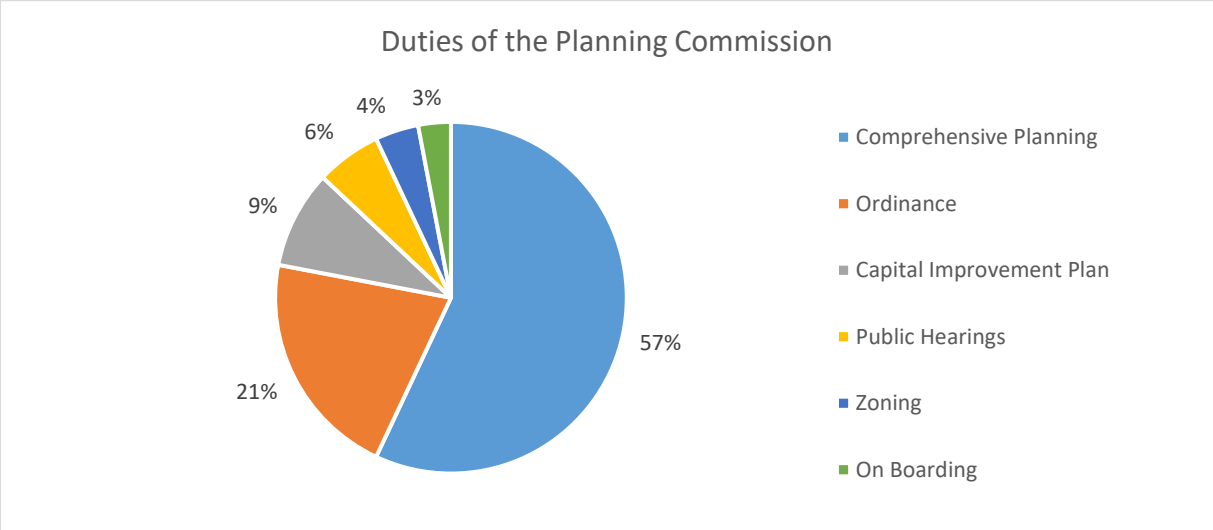
Implementation strategies

- Develop an electronic method, brochure and ads that communicate to all the purpose and contents of the final plan.
- Hold community meetings to explain the plan and answer questions.
- Maintain updated information on Town website and PC Facebook page to enhance communications.
- Develop press releases to make Public Notice of the new plan.

- Establish a quarterly method to update the public on changes and implementation progress.
- Send copies electronically to bordering Counties and Virginia Agencies of Government.
- Meet with neighboring Counties to create an effective partnership.
- Create or update Zoning Ordinances to enhance implementation of the action items.
- The Planning Commission shall receive a presentation of the Capital Improvement Plan (CIP) for review ad feedback prior to budget adoption.
- Establish a Resiliency Committee to promote and ensure the resiliency and sustainability of Colonial Beach.

The role and duties of the Planning Commission

Planning Commission Members are the caretakers for the Town's adopted Comprehensive Plan. The yearly Bylaws encourage each member of the Commission to attend the Certified Planning Commissions' Land Use Education Program to initially prepare them for serving as a Commissioner. Collaborative skills are essential behaviors that help Commissioners work together and function well in their processes, to see all perspectives and encourage a consensus decision. It is necessary for Commissioners to research topics being discussed in relationship to the common good of all citizens, as well as the recommendations for action in the Comprehensive Plan. The environmental and natural resources of Colonial Beach must also be considered when considering needs and policies. The resources listed below offer additional support to that received from the Town leadership and staff, collaborative organizations, the Northern Neck Planning District, and the Westmoreland County Planning Board to assist in making informed decisions.



Collaborators during the planning process

The Planning Commission has many opportunities to create intergovernmental relations and especially with Westmorland County. The County will play a key role in assisting the Town move forward with many town/county relationships.

The following governmental agencies/departments will be helpful in many areas:

- Alliance of Colonial Beach Community Organizations
- Area Agencies on Aging
- Chesapeake Bay Commission
- Colonial Beach Community Foundation
- Commission for the Arts
- Department of Environmental Quality
- Downtown Colonial Beach
- Economic Development
- Game & Fisheries
- Resilience Adaptation Feasibility Tool (RAFT)
- Historic Resources
- Housing Authority
- Housing & Community
- Marine Resources
- Social Services
- Tourism
- Transportation

In addition, Colonial Beach, an incorpora ted Town within Westmoreland County, is represented on the Board of County Supervisors and benefits from the collaborative relationship. Funding is provided through the County for many services including Police and Emergency. Other areas of future collaboration could include:

- Development of an Annexation Policy
- Social Service Alliances
- Grant Development
- Complimentary Study of Ordinance
- Regulatory Measures

Prescription for the ongoing renewal of the Comprehensive Plan

- 2022 – Update data from 2020 Census Report – continuous project due to length of Census Data
- 2023 – Research Environment and Natural Recourses published by State Laws or Environmental Associations 2024 – Update the Action Plan in accord with emergency needs
- 2025 – Review and update Land Use Present and Future
- 2027 – Determine which Chapter of Comprehensive Plan needs review and input
- 2028 – Evaluate the achievements of the Action Plan and seek further citizen input for other needs
- 2029 – Research the current statistics for Housing and develop trends as needed by statistics
- 2030 – Review the Transportation Chapter to update current situation of law.
- 2031 – Survey the Home Owners in Town to review the future Vision for Colonial Beach.

Funding the Comprehensive Plan

Basic improvements and maintenance are paid for through the Town's tax structures and fees. Funding also comes from taxes paid to Westmoreland County. The Town Council and/or County Supervisors set the rates, often in keeping with State requirements and guidelines.

State and Federal Grants and Loans assist in securing extra funding to help underwrite costs for needs and projects identified in the Capital Improvement Plan. It is important that the Town monitor and remain alert to the possibilities available. To assist in this effort, the Town may explore the possibility of a Grant Council.

A full listing of grant opportunities for funding the plan may be found in Appendix A.

Members of the Planning Commission and Town Council

The following individuals played key roles in the creation and adoption of this Comprehensive Plan:

Planning Commission members

- Vicki Luna (Chair)
- Maureen McCabe (Member)
- Nathan Howell (Member)
- Bob Christiansen (Member)
- Fletcher Lee (Member)
- Bryon Mack (Member)
- Steve Ale (Member)

Town Council members

- Robin Schick (Mayor)
- Mike Cabrey (Council Member)
- Caryn Self Sullivan (Council Member)
- Tom Moncure (Council Member)
- Powell Duggan (Council Member)
- Kenneth Allison (Council Member)
- Vicki Roberson (Council Member)

Colonial Beach: A snapshot

A history of Colonial Beach

Pre 1600: Early History

Colonial Beach is a small beach town in Westmoreland County on Virginia's Northern Neck. Three famous Virginia families (Washington, Lee, and Monroe) settled on the Northern Neck, where they took advantage of the many natural resources the area offered.

The early 1600's saw permanent Native Americans' villages established in Westmoreland County. In 1608, when Captain John Smith toured the area looking for good settlement ground, he reported finding Indians living in the area. The Indians he met spoke Algonquin, or a derivative, but they eventually moved on in search of better lands. Colonial Beach, at that time, did not have permanent settlements.

As part of a peace treaty with the Indians in 1646, Virginia had promised not to settle the Northern Neck or Middle Peninsula, but by 1648 that promise was already broken. Disgruntled persons, mostly white males fleeing Kent Island and St. Mary's County in Maryland, settled in the area. They were the first settlers in what was to become Westmoreland County in 1653. The Colonial Beach area was a part of that land grab and by the late 1650s, the area that comprises Colonial Beach belonged to British landowners.

Altercations between the early white settlers and Native Americans of Westmoreland County forced the Wicomico, Lower Cuttawomen, and Sekakawn tribes into a 4,400-acre reservation in Lancaster County during the years 1655 and 1656. This reservation land was eventually sold in 1696 to Europeans.

The 1600s:

Who Lived Here?

Historical information about the poorer residents is sparse. Some of the residents came from Maryland seeking religious freedom, some were freed indentured servants, and others were males disembarking British boats for various reasons–some just left the boat; others were delivered here. There were a few free Black people. Those who were not indentured servants or slaves were often living in poverty conditions with few ways to make a living. They would grow small crops, trap, fish, and hunt. Some would find employment on farms or plantations, but they had to work for low wages or room and board because they were competing for employment with indentures and slaves. In the late 1600s, there was great unrest with this poorer population who lived in Westmoreland.

Much of Westmoreland County in the 1600s was originally settled by planters (farmers) who had land and indentured servants. If the indentures survived their employment, they eventually were given their freedom, though often not nearly as soon as promised.

As soon as the first Europeans began to travel from Britain to the New World, wealthy persons and speculators in Britain wanted to obtain land. The English who settled in Virginia in 1607 later asserted their ownership over Virginia. During the Colonial Period, individual colonists, and some who never left Britain, acquired real property in several ways. These first included land grants by the Virginia Company, then through head rights, treasury rights, and military warrants. Land was also awarded to British nobles by Kings.

Most of the land acquired in Colonial Beach between 1650 and 1670 was part of a big Virginia land grab. This was the beginning of Virginia land speculation. Many of the British landowners did live in Virginia, at least for a time. Some quickly resold their land and purchased more. The Westmoreland Deed Book I is a local record of the land purchased around 1650 and after. There is also a State Land Office in Richmond where transactions should have been recorded, though some were not. The land which was to become Colonial Beach was occupied by large farms or plantations during the 1600s and likely some smaller farms or acreages where poorer people lived.

1676–Bacon's Rebellion

Bacon's Rebellion in 1676 was the first uprising in the colonies against Virginia Governor William Berkeley, who represented the British monarchy. The real end result was that the poorer people–free poor, enslaved and indentured servants united. They had demanded that males without land be allowed to vote, which frightened the British governor and rich landowners. The rebellion ended quickly but the roots of rebellion were sown in Westmoreland County.

Slaves and the 1687 Westmoreland Slave Plot

On October 24, 1687 Royal Governor's Council, Colonel Nicholas Spencer, reported a plot by slaves in Westmoreland County to kill white colonists and destroy their property, both within the county and throughout Virginia. Spencer captured the accused slaves before the plot could be implemented and delivered them to the governor who created a special commission to try the suspected rebels. No records exist of the 1687 trial's proceedings or outcome.

In April of 1688, a slave named Sam, who was owned by a Westmoreland County planter named Metcalfe, was found guilty, along with his co-conspirators, of fomenting rebellion. He was not hanged but whipped in two localities and made to wear a heavy collar around his neck for the rest of his life.

The Westmoreland Plot made local planters fear enslaved Black people. Servitude in Virginia was now dictated by race as white planters continued to amass slaves. Many people in Westmoreland had one or two slaves and it is almost certain that some of those slaves lived in Colonial Beach.

A few free blacks also lived in Westmoreland County. Some had ancestors who bought their freedom, some had been released from indenture, and some were granted freedom by their owners. They were denied an education and other freedoms, such as restrictions placed on marriage and travel, but they made their places in the community. Some of them served in the American Revolution, such as Rodham McCoy, Thomas Mahoney, Joshua Payne, Thomas Sorrell, and Nathan Fry. For more information about free blacks in Westmoreland County, see:

- https://www.librarypoint.org/blogs/post/westmoreland- african-american-history/
- http://www.freeafricanamericans.com/Tann_Viers.htm.

The 1700s

In 1766, Richard Henry Lee of Stratford Hall wrote the Leedstown Resolves, openly resisting British rule. Six male members of the Lee family, five male members of the Washington family, Spence Monroe, and 115 freeholders–free, male property owners over the age of 21, eligible to vote–signed the Leedstown Resolves, which was an act of treason against the British.

In 1776, Westmoreland had 700 white males in the militia. All male inhabitants over the age of 16 who were not slaves had to be part of the militia, so this appears to be the total free white male population of the county. The wealthy white male planters of the 1600s met their goal. Not only had they become rich by using slaves for free labor, but in 100 years the population of Westmoreland County had not increased much because they had successfully discouraged small planters and businessmen, had purchased as much land as they could manage, and had lobbied against allowing for new towns in the area.

We know that several Revolutionary War leaders lived in Westmoreland County and that Andrew Monroe and then Spencer Monroe, the father of President James Monroe, were wealthy area planter leaders who lived within the Colonial Beach land area. All generations of the Monroe family through James Monroe were slave owners. Consequently, we know that slaves lived in the area that is currently Colonial Beach.

The 1800s

The new era of the 1800s brought wars fought by the new United States in the northern part of the country, but the Northern Neck of Virginia remained isolated to those occurrences. Investor in Henry Kintz, who purchased over 600 acres of what is now known as The Point in Colonial Beach. Soon after, as part of the development of a future town, the first survey was conducted, and boundary lines began to form. The town of Colonial Beach was formally established in 1892. A. Melville Bell, father of Alexander Graham Bell and President of the Colonial Beach Improvement Company, worked to attract Washingtonians to visit the area. Consequently, Colonial Beach emerged as a fishing and bathing resort.

The oysters that are bedded in the Potomac River became the center of a conflict between Marylanders and Virginians. Virginians charged a toll to get to the Chesapeake Bay, so Marylanders responded by forbidding fishing in the Potomac, which is owned by Maryland. The Oyster Police tried to contain the conflict and finally the two states came to an agreement. The Potomac Fisheries was established to maintain peace and allow both states to fish the waters and farm oysters. Colonial Beach was the epicenter of the conflict and the skirmishes that lasted into the 1960s.

The 1900s Forward–Modern Times

In the early 1900s, the steamboat and ferryboat brought many tourists to stay at various hotels and inns. Thus, Colonial Beach prospered as a resort for many years. The lure of the beaches and waterfront property started a building boom of Victorian homes, cottages, and large hotels. The Colonial Beach Hotel was a landmark in the Town and provided entertainment as well as lodging. Many other hotels, rooming houses, a dance pavilion, a carousel, restaurants, amusement halls, and bowling alleys lined the boardwalk and side streets. Colonial Beach became known as the “Playground on the Potomac”. However, it was not until a Public Beach Sit-In that the beach, which had previously only been available to whites, became desegregated.

In 1949 newly legalized gambling casinos began to line the beachfront. The casinos hosted many headline singers and dancers, as well as many visitors. Economic growth created a boom on the waterfront but that was not lasting. The casinos set on piers in the river were legal in Maryland. With the Maryland state line mirroring the waterline, Colonial Beach saw little economic benefit.

In the latter part of the 20th Century, the Town suffered economically and many structures along the Boardwalk were destroyed by fire and weather. The deterioration of the downtown district is directly tied to the termination of steamboat service, climate events, and time.

The 21st Century

The beginning of the 21st Century fostered a new era throughout the region. Many faced the reality with anxiety and trepidation, but the spirit of the residents moved the town forward to a new beginning. Tragic hurricanes hit Colonial Beach and devastated the Boardwalk area. However, many nonprofits began to develop an activities approach to draw visitors as the town developed ways to improve the town.

A Revitalization Committee was formed to help the Town develop and grow. However, the committee was unsuccessful in bringing a grant to Colonial Beach. The Northern Neck Planning District Director, Jerry Davis, was eventually brought to the Committee and, with his expertise, the Town was awarded a Revitalization Grant for the boardwalk area. Signage was developed to locate the beaches and encourage visitors to engage in new activities. The Town also was able to renovate the frontage at the end of Colonial Avenue. The renderings included waterspouts, benches, and tables for gathering. This phase of the work never came about, but the Town worked out another way to complete the design.

The 2020 Global Pandemic called many businesses to a halt and many are investigating alternative ways to do business. The challenge of the Pandemic is to develop businesses that will maintain the health and welfare of all citizens.

For more information about the Town of Colonial Beach, visit the official Town website, www.colonialbeachva.net and its tourism website, www.visitcbva.com.

Population characteristics and trends

Demographic trends

The study of Colonial Beach's population characteristics provides an essential foundation for the planning of capital facilities and services. A reasonably accurate forecast of population size for the community, as well as for specific demographic groups, is needed to ensure timely provision of utilities, human services, school and recreation facilities, and transportation improvements.

Colonial Beach has been the predominant center for population growth in Westmoreland County. Colonial Beach's population out-paced that of both the Westmoreland County and the State of Virginia through the 1990 census.

Table 1: Comparative Population Growth – 1990 - 2020 Census Data

Location	**1990**	**% change**	**2000**	**% change**	**2010**	**% change**	**2020**	**% change**
Virginia	6,487,358	21.3	7,078,515	9.1	8,001,024	13.0	8,631,393	7.3
Westmoreland County	15,480	10.2	16,718	7.9	17,454	4.4	18,477	3.2
Colonial Beach	3,132	27.0	3,228	3.1	3,542	9.7	3,908	10.3

University of Virginia Weldon Cooper Center for Public Service: demographics.coopercenter.org/census 2020

Age Groups

Population and estimates by age for Colonial Beach and for Virginia are shown in Table 2 below:

Table 2: Population and Growth Estimates by Age

Age	Colonial Beach population	Growth from 2000 Census
0-4 years	205	5.79%
5-17 years	511	14.43%
18-64 years	2,083	58.81%
65+ years	743	20.98%

http://censusviewer.com/city/VA/Colonial%20Beach

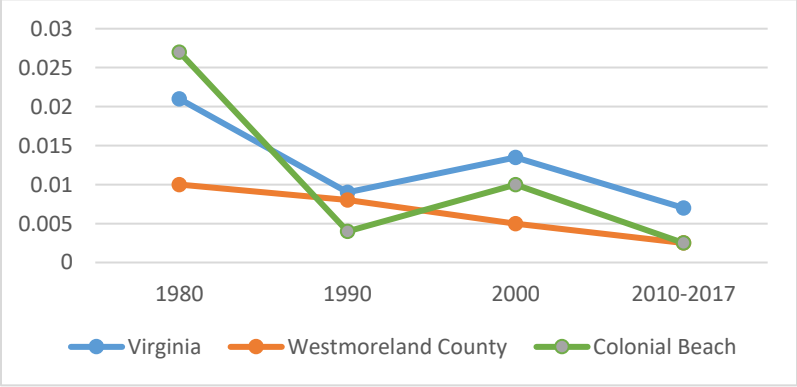
The growth of 65+ households has been rising in Colonial Beach since 1980. In part, this trend is reflective of the aging population pyramid which characterizes the nation. A substantial part of this growth, however, can be attributed to a growing influx of retirees from outside the immediate area. The net effect of these trends upon Colonial Beach is mostly positive. The contribution of the 65+ households to the local retail and service economy is significant since many 65+ households are unwilling to drive long distances to competing trade centers.

A growing 65+ household population also brings increased demand for services such as emergency 911 services and other health and human services, some of which can be costly to provide. These and other related concerns often require communities to expand capabilities. Although health care facilities are available to town residents, there is a need for more of these facilities (especially those geared for the elderly population). The private sector has responded to meet some of these needs through the operation of the Mary Washington Health Center and the construction of a retirement complex. Both of these facilities are advantageously located on Route 205. Nearby hospitals at Fredericksburg and Tappahannock are reasonably convenient and reachable by local rescue squad services. Enhanced 911 service is currently being provided to all residents of the town. As the elderly population continues to grow, there will be an increased demand for medical facilities in Colonial Beach. Such facilities may prove to be a promising source of economic growth, particularly if the Town becomes a regional center for medical care.

Population growth trends and projections

The Colonial Beach growth rate has been fairly erratic since the 1980's. The chart below depicts how its percentage change in growth rates compares with Virginia and Westmoreland County.

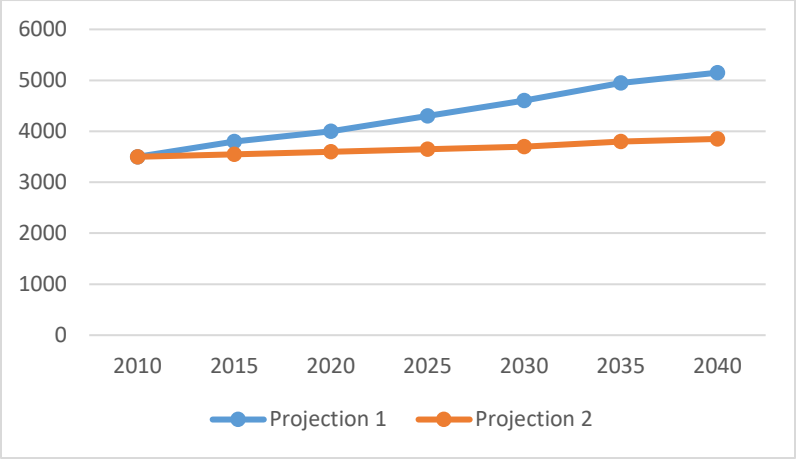
Chart 1: Average Annual Growth Rates from the 1980's to 2017 Census Data



The following population projections utilize a conventional approach to forecast the town's population growth over the ten-year planning horizon. More specific calculations over the years should be utilized to support the design and implementation of capital improvement projects and public service programs. Nonetheless, the figures below constitute a reasonable range of the town's future population over the indicated five-year time spans.

The chart on the following page depicts two growth projections. The first assumes that over the next twenty years, Colonial Beach will maintain the annual average growth rate achieved between 1980 and 2020. However, given the location of the town and the current economic conditions, the second projection illustrates a population projection based on a slower annual growth rate. As of the 2020 Census, Colonial Beach's population was 3,908; this is more aligned with Projection 1 that illustrates a higher rate of growth.

Chart 2: Colonial Beach Average Annual Growth Rate Population Projections



Future growth factors

Colonial Beach continues to attract retirees and second-home owners predominantly from outside the region. It also serves as an outlying "bedroom community", dependent on employment centers located primarily in Dahlgren, Fredericksburg, and the Washington, D.C. metro area. In addition, the Nice Bridge Improvement Project will improve mobility, safety, and economic conditions for those traveling to and from Colonial Beach. This project, which began in 2020, is expected to be completed in 2023 and will replace the existing two-lane bridge with a four-lane span that includes travel lanes and shoulders (see p. 75).

The Town's relative affordability, mild climate, and desirable waterfront setting will all continue to attract new residents. It is important to note that many who migrate to the town tend to value small-town livability and an aesthetically pleasing environment. Accordingly, the town should strive to protect and enhance these amenities that attract new residents.

Looking ahead: Issues and challenges

The years ahead will be bright because of the people who make Colonial Beach home! With many challenges to face, the spirit of giving and support will help the Town of Colonial Beach to continue to grow, prosper, and improve the quality of life for all.

In addition to external factors, future growth in the town will hinge, to a large degree, on expansion of the local employment base, the augmentation of recreational and entertainment facilities, and per capita tax reduction. Light industry, personal and professional services, and expansion of the tourism industry would generate new employment opportunities which would bring outside dollars into the local economy, helping to relieve some of the per capita tax pressure. The Town's greatest recreational resource is its expansive beachfront.

Two additional points concerning future population growth should be mentioned. The only municipal wastewater treatment plants in Westmoreland County are located in the Towns of Colonial Beach and Montross. The Colonial Beach plant has the capacity to accommodate an increase in service population however storm water impacting the inflow and infiltration (I&I) to the wastewater system must be addressed. The availability of public sewer will reinforce Colonial Beach as one of the logical locations in the County for large-scale residential growth. Additionally, a majority of lands adjoining Colonial Beach are limited by hydric soils. Other areas are constrained by wetlands, tidal marshes and steep slopes.

Community resources

Community events

The town's many events bring in thousands of visitors and provide a unique opportunity for the town to showcase its attributes and qualities. Currently, the majority of these events and activities are sponsored and organized effectively by various community groups and organizations such as the Chamber of Commerce, Downtown Colonial Beach, Artists Guild, etc. The Town and Tourism Board should consider hiring a full-time or part-time event's employee to supplement existing activities, vigorously promote the town as a year-round destination that is capable of hosting a wide variety of events and build strong relationships with adjacent tourism groups such as the Northern Neck Tourism Council.

Community organizations

The Town of Colonial Beach is fortunate to have a number of fraternal, service, veteran, and religious community non-profit organizations that are working to improve the town and provide valuable services to community members such as:

- Alliance of Colonial Beach Community Organizations
- American Legion Post #148
- BAMM – 501(c)3 Arts & Music
- Boy Scouts, Sea Scouts, and Cub Scouts
- Chamber of Commerce
- Colonial Beach Community Foundation 501(c)3
- Colonial Beach Artist's Guild
- Colonial Beach Community Radio (WWER) – 501(c)3
- Colonial Beach Historical Society
- Colonial Beach Humane Society
- Colonial Beach Performing Arts Association – 501(c)3
- Colonial Beach Rivah Dogs – 501(c)3
- Colonial Beach Volunteer Rescue Squad
- Colonial Beach Volunteer Fire Department
- Downtown Colonial Beach - 501(c)3
- Fraternal Order of Eagles
- Moose Lodge #1267
- Salvation Army
- Heritage Shriner Club
- NARFE (National Active and Retired Federal Employees)
- VFW Post #10574

Colonial Beach is also home to the following churches:

- Colonial Beach Baptist Church
- Colonial Beach United Methodist Church
- First Baptist Church
- Livingstone Community Church
- New Life Ministries
- Monroe Bay Assembly of God
- New Monrovia Baptist Church
- River of Life Pentecostal Church
- St. Elizabeth Catholic Church
- St. Mary's Episcopal Church

Community facilities

Community facilities consist of all public buildings, utilities, services, and lands catering to Colonial Beach area residents. One of the principal functions of local government is to provide water/sewer and trash removal services, police and fire protection, parks and recreation facilities and other types of human services needed in the community. It is the responsibility of the Town of Colonial Beach to provide these services within the bounds of its legal authority and its financial capability.

Government facilities

Town offices

The Town Offices are located in the Central Neighborhood at 315 Douglas Ave, Colonial Beach. The Department of Public Works is located at a location off Rt. 205, adjacent to the Sewage treatment plant.

The Town of Colonial Beach operates under a council manager form of government, which is composed of a mayor and six council members, all of whom are elected into office. The Council has the authority to appoint a Town Manager to serve as the Chief Administrative Officer and shall have general charge and management of the administrative affairs and work of the town. The Council serves the governing body to set policy, adopts the town's operating and capital budgets appropriates all funding, approves grants, and is empowered to levy taxes and pass ordinances. Council members are elected for four-year staggered terms by the qualified voters of the Town. The Town Council of Colonial Beach generally meets for a work session and formal session each month. For a full list of Town Council 2021 priorities, please see Appendix B.

Town Hall, located on Douglas Avenue, is the central headquarters for Town's government and houses the Mayor, Town Manager, Chief Financial Officer, Town Clerk, and their staff. The Public Works Department is located at the Waste-Water Treatment Plant Facility off Route 205.

Police department

The Town of Colonial Beach Police Department, located at the BB&T/Truist building on Colonial Avenue, provides police protection to Colonial Beach and nearby Westmoreland County. The Chief of Police and the officers of the Department have numerous community responsibilities and programs designed to promote crime awareness and prevention with increased accuracy and efficiency.

Current community programs include:

- D.A.R.E. -- Drug Awareness and Resistance Education
- Teen Alcohol Awareness Program
- Neighborhood Watch
- Municipal Parking Patrol -- The Police Department patrols the municipal parking lots, residential areas and metered areas, and tickets violators to curb parking abuse in the central beach front areas.

Westmoreland County Government

Jurisdictions of cities and counties are separate; therefore, residents of cities vote for only one set of local officials - their city officials. The residents of the county vote for only one set of local officials -- county officials. However, residents of Virginia towns, which are within counties, vote for two sets of local officials, both county and town officials, as is the case in Colonial Beach. The Board of Supervisors is the governing body of the Westmoreland County government and has control over County taxation, budgets, borrowing, and accounting.

Westmoreland County is divided into five election districts. The qualified voters of each election district (Colonial Beach being in the Washington Magisterial District) elect a Supervisor from their district for a term of four years. The Board of Supervisors for Westmoreland County consists of five supervisors. The Board meets monthly in the court room of the George D. English Building in Montross, the county seat.

Volunteer fire department

The Colonial Beach Fire Department is a self-supported organization that has multiple volunteers and dedicated members. The Fire Department is located at 312 Colonial Avenue. The facility includes offices, recreation room / workshop, washroom for trucks, baths, engine room, and a well-equipped meeting area which is often used for community meetings and dances. A drill field with power, water, and tower is also operated by the Fire Department. All pumpers are equipped with large-diameter supply hoses to meet big flow requirements, which may be necessary in large commercial or light industrial developments.

National Fire Protection Association (NFPA) approved firefighter in Training is mandatory for all active members. In addition to fire prevention and suppression, the Department also responds to life-threatening EMS calls, and provides service in heavy and tactical rescue, including vehicle extrication, rope rescue, confined space rescue, and trench rescue.

The present facilities and equipment are adequate in meeting the demand in Colonial Beach and nearby Westmoreland County. More services have been added in local areas to support these services throughout Westmoreland County.

The current volunteer facility is also leveraged as the town’s Emergency Operations Center (EOC) in the event of an emergency. Given the town’s geographic location, there persists a need for a local designated emergency shelter.

Volunteer rescue squad

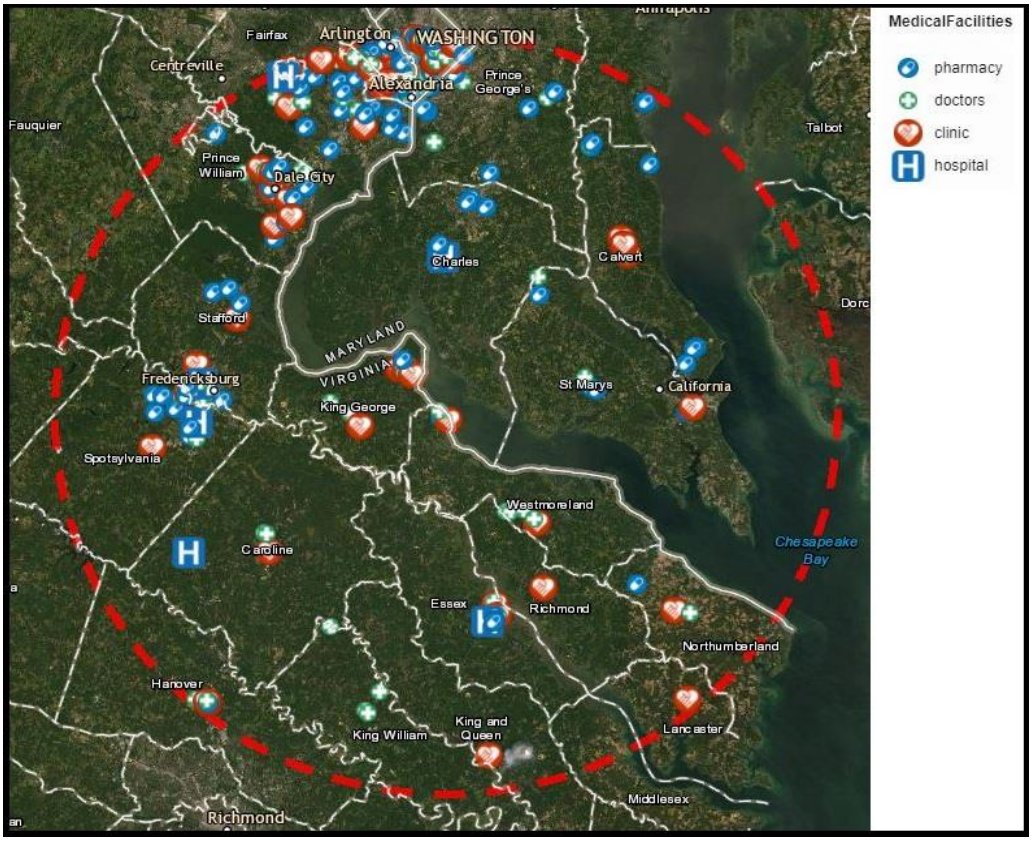
The Colonial Beach Rescue Squad is an all-volunteer, self-supported organization which furnishes the Town and surrounding County area with emergency services. The Rescue Squad facility is located at 225 Dennison Street. The existing facility includes a meeting room, first aid room, recreation room, bays for the units, and a large community meeting room. The Rescue Squad has active running members, five ambulances (all are Advanced Life Support Units), one command vehicle, and two boats. As the Town's population increases, the Rescue Squad will have to purchase additional equipment to adequately meet the demand. Currently, located in a floodplain, the CBVRS is scheduled to build a new facility and move to 700 Colonial Avenue ensuring resilience and sustainability of our emergency services.

Health services

The residents of Colonial Beach are served by the Westmoreland County Health Department (WCHD), which maintains two offices in Montross. The Health Department building on Route 3 in Montross houses the Health Services section and the Westmoreland Medical Center. Westmoreland Medical Center is a not-for-profit Community Health Center, which provides full primary care service. Services available from the Health Department Health Services section includes services for immunization, sexually transmitted diseases, other communicable disease control, WIC (Women, Infants, & Children's) special nutritional program), and Resource Mothers (directed to assisting pregnant teenagers). WCHD is staffed by a part- time nurse practitioner, one public health nurse, a nurse aide, two clerks, a nutritionist, a nutritionist assistant, and two part-time Resource Mothers.

The Town also has limited medical offices serving the Town, including the Guadalupe Free Clinic, East Coast Physicians, P.C., Colonial Beach Medical, and Urgent Care Services in King George County through Mary Washington Hospital. The following map depicts all medical facilities within a 45-minute radius of Colonial Beach:

Medical Facilities Map



Residents have requested collaboration among the neighboring counties to strengthen the development efforts of emergency medical care for area citizens; thus, helping them remain in their homes and community. In addition, other providers of health services located in the Town include home health care and Alcoholics Anonymous. Chesapeake Bay Agency on Aging, Inc. provides nutritional services and social interaction for seniors every Monday, Wednesday and Friday morning with Bay Agency Transportation.

Social services

Westmoreland County Department of Social Services

The residents of Colonial Beach are served by the Westmoreland County Department of Social Services, which is located at 18849 Kings Highway in Montross. This department, which is funded by local, state, and federal governments, handles the County welfare and food stamp program, as well as providing trained social workers in an outreach program for the citizens of the County. A satellite office would make multiple county services more effective.

The American Red Cross

The American Red Cross is a humanitarian organization led by volunteers and guided by its Charter to provide relief to victims of disaster and help people prevent, prepare for, and respond to emergencies. The local chapter is in Kilmarnock and maintains inventories in 3 locations of emergency food, water, bedding, health supplies, and clean-up kits. A larger back-up supply is maintained in Richmond. Below is a listing of some of the services provided through the local chapter of the American Red Cross.

- Volunteer training on how to help in a major disaster, such as a hurricane.
- Responding to local "small disasters" such as a house fire.
- Providing meals, lodging, and clothing to families facing disasters to help them begin their recovery.
- Blood collection and distribution
- Location and relay of information to armed services personnel anywhere in the world during emergencies.
- CPR (Cardio Pulmonary Resuscitation) training of hundreds of individuals each year.

Bay Aging

BAY AGING
DIGNITY AT EVERY AGE

Bay aging is the premier provider of programs and services for older adults and people with disabilities of all ages. Formed in 1978, Bay Aging serves a predominately rural 2,600 square mile region that encompasses ten counties and two planning districts.

Bay Aging is extremely diverse in the programs it offers through four major divisions: Health Services, Bay Transit, and Senior Apartments / Bay Family Housing. The services under each of these divisions are listed below.

- Health services
    - Bay Aging provides a number of health-related services including: Meals on Wheels, Personal Care Assistant, Respite for Caregivers, Alzheimer's' Disease Support Groups, Adult Day Break Centers, Active Lifestyle Centers, Med Carry, Virginia Insurance Counseling and Assistance Program, Retired and Senior Volunteer Program, and Legal Aid.

- Bay Transit
    - Bay Transit is the region's only public transportation provider. They operate from 6:00 am to 6:00 pm Monday through Friday and provide low cost, on-demand transportation service as well as offering fixed routes. Fixed route trips from Colonial Beach include: morning and evening service to Dahlgren Naval Weapon Stations, Tuesday/Thursday service to Fredericksburg, around town four days a week, monthly service to Potomac Mills (DC shopping area) and trolley service during summer weekends and holidays.

- Senior apartments/ Bay family housing
    - Presently, Bay Aging owns and manages seven complexes throughout the Middle Peninsula and Northern Neck region of Virginia for people 62 years and older. One such complex is located in Colonial Beach off Rt. 205. The Meadows, which is a 32 unit facility, is managed to ensure that their residents have all they need to continue living healthy independent lives, and as such the management is available to help residents who need special services such as housekeeping, transportation, meal service, etc.

- Meals on Wheels
    - Bay Aging supplies Meals on Wheels for people in the 22443 zip code. Volunteers deliver meals to people on a regular basis. Bay Aging is always looking for Volunteers to assist in this project. (https:/www.facebook.com/BayAgingVA).

Community services board

The Middle Peninsula-Northern Neck Community Services Board (MPNNCSB) is one of 40 boards across Virginia providing services related to mental health, intellectual disabilities, substance use, prevention, and early intervention. They serve the ten counties of the Middle Peninsula and Northern Neck. The MPNNCSB provides the following services:

- Prevention, Education, Training, and Consulting
- Early Intervention
- Counseling
- Case Management
- Vocational and Day Support
- Emergency Support

Colonial Beach Village

The Colonial Beach Village Inc. is a 501(c)3 nonprofit corporation, established in 2011, to meet the needs of the senior community living within the 22443 zip code. The Village Concept supports seniors aging in place, enabling them to remain in their own homes by providing a variety of services; transportation, home repair ($2500), paperwork, and electronics.

Library

Colonial Beach has a branch library serving the Town and adjacent Westmoreland County. It is a part of the Central Rappahannock Regional Library serving the City of Fredericksburg and the counties of Spotsylvania, Stafford and Westmoreland. The Branch (Cooper) is conveniently located on Washington Avenue in a 4,720 square foot building owned by the Town (the Town also furnishes utilities) and was renovated for the library in 2000. It has a collection of 24,085 items and provides regularly scheduled programs for all ages, 12 public-access computers with high-speed internet capability (including Spanish and juvenile computers), wireless internet access, a quiet study area and a 30-seat meeting room. The building is ADA (handicapped) accessible and has one ADA (handicapped) accessible parking space on the street. Its central location in the Town and its proximity to the school make it readily available to both elderly people who live within walking distance, and the elementary school children. Check-outs average about 100 per day over the five days per week that it is open. The library is closed on Sundays and Mondays. Through ready access to the Main Regional Library, and its state and national referral capability, almost unlimited availability of books exists. In addition to the usual library facilities, the branch provides a variety of programs such as story hours for the children, as well as arts and crafts exhibits. A community bulletin board is also provided.

Colonial Beach school district

Currently, the Town of Colonial Beach maintains and operates one school system to accommodate enrollment of students in grades PreK-12. A New Primary/Elementary School (K-7) and a High School (8-12) are located on the same site. The town also offers education to non-residents. The High School participates in vocational training in cooperation with the Northern Neck Technical Center and offers AP courses and dual enrollment classes from Rappahannock Community College. The School System is fully accredited.

The town hosts a Northern Neck Head Start program for four-year-old "at risk" children. Additionally, there is a Regional Special Education Program housed in a learning cottage on the property. While the administration of a school district in a small town is a significant investment, citizens of the town have repeatedly voiced benefits, which result from the town's operation of its own school system. These benefits include:

- A local system that is source of pride and is a community focal point.
- A high-quality school system that is a positive asset to the development of the Town.
- A short transit to school for students, with many students being able to walk to school.
- Schools that are safe and secure educational institutions.
- Extra-curricular activities for children.

The Colonial Beach High School, completed in 1988, is located on 1st Street. The high school (grades 8-12) can house 316 students. The building has a cafeteria, 16 classrooms, and other facilities, including a football field, baseball field and softball field.

The Head Start program is located in learning cottages on Lincoln Avenue behind the high school. The Head Start Program can educate 18 students. This site also contains a double long mobile unit which houses two classrooms. Head Start is a federal program designed to provide schooling to pre-kindergarten aged children who show signs of being "at risk." The program can enroll 18 students for a full day.

In 2017, the Town built a new elementary school, adjacent to the High school, it houses grades K-7 grade, has state of the art library, a new gymnasium and host many community events.

The Colonial Beach School Board is currently remodeling the former historic kindergarten building on the school campus to relocate its administrative offices.

School Information and Statistics can be found at http://cbschools.sharpschool.net/

Considerations for growing community resources

The following should be taking into consideration when planning for the future growth of community resources:

- The Town's water supply will be subject to several stressors in the next 20 years (see p. 105), and possible boundary adjustments and controlled growth continues to be a departmental concern. Each time a new subdivision is considered, or additional land is incorporated; the Town should contact the appropriate state officials prior to acceptance to ascertain what facilities or infrastructure up-dates would be required. If new facilities are required, then negotiations with the developer should take place so that undue burdens are not placed on the existing tax base. This applies equally to a timely provision of sewage collection facilities, roads, and storm drainage.
- Town Council could consider directing administration to conduct a town wide staffing needs analysis for general government, and emergency services (police, fire and rescue)
- Continual analysis of the Fire Department's facilities and equipment must also be updated to accommodate the increased needs.
- Residents have emphasized the need for emergency care
- Town Council should conduct an audit of staff positions to see if services presently being given suffice for the future needs of the Town.
- The Town affords students and parents many opportunities to serve the community and needs their assistance in many ways to continue to grow Colonial Beach.
- The Town has laid groundwork for moving forward with comprehensive water, wastewater, stormwater, road, and additional utility management planning with the addition of Geographical Information System (GIS) personnel, surveys, technology, and equipment. The GIS will be utilized to inform Town officials and staff of current to past conditions in the formulation of current capabilities as well as future needs. It is recommended that the GIS be the foundation for engineered solutions to stormwater, environmental impacts, transportation and utilities within the town moving forward requiring continued investment in the technology, manpower, and resources to build and maintain a robust system.

Economic development analysis

Current Economic Conditions

Before and since its incorporation as a town in 1892, Colonial Beach has been a regional center for fishing and a destination for tourism thanks to its location on the Potomac River. As the epicenter of the 19th and 20th century "Oyster Wars," the town's fishing tradition persists with stops on the Virginia Oyster Trail such as seafood restaurants, maritime art, and town pier fishing.[1] Outside of the town, several nearby oyster companies are among Westmoreland County's top employers. With the continued expansion of nearby urban centers such as the Washington, D.C. metropolitan area, Colonial Beach's reputation as the "playground of the Potomac" has endured thanks to attractions such as the state's second largest public sand beach, its boardwalk establishments, and multiple vineyards.[2]

Several of the town's businesses are among the region's largest employers, including Food Lion, McDonald's, Wilkerson's Seafood Restaurant, Ledo Pizza & Pasta, High Tides on the Potomac, Rankins Hardware, and 7-Eleven.[3]

Table 3: Top 50 Employers (Westmoreland County)

1. Westmoreland County School Board	26. Ledo Pizza & Pasta
2. Carry-On Trailer Corporation	27. People's Community Bank
3. County of Westmoreland	28. Utility Professional Services, Inc.
4. Bevans Oyster Company	29. Wag Employee Services, Inc.
5. Town Colonial Beach School	30. Central Virginia Health Services, Inc.
6. Ingleside Plantation	31. Angelos Pizza Restaurant
7. Food Lion	32. Pathway Counseling Services, LLC
8. Potomac Supply, LLC	33. High Tides on the Potomac
9. O'Gara Homeland Defense	34. DiPardo and Cole, LLC
10. Mary Washington Health Center	35. Hopewell Nursery
11. Town of Colonial Beach	36. Robert H. Gawen and Sons, Inc.
12. Virginia Department of Conservation	37. U.S. National Park Service
13. Robert E. Lee Memorial Association	38. Rankins Hardware, Inc.
14. Bonums Oyster Company	39. Chesapeake Bay Agency on Aging
15. McDonald's	40. Oak Grove Christian Academy
16. Hall's Market	41. Stanley's Dairy Freeze
17. Postal Service	42. The Backdraft
18. Carville Landscape Co.	43. Capt. Faunce Seafood, Inc.
19. Dolgencorp, LLC	44. Central Rappahannock Regional Library
20. Northern Neck Chevrolet, Pontiac	45. Parker Farms
21. E & C Mid-Atlantic Ventures, LLC	46. Quarles Petroleum, Inc.
22. Herbert Wilkerson and Sons, Inc.	47. 7-Eleven
23. Northern Neck Building Supply	48. Garner's Produce, LLC
24. Caring Senior Service of Fredericksburg	49. VDOT
25. Donovan Grimley Investment, LLC	50. Westmoreland Land Company

Source: Virginia Employment Commission, October-December 2019

Table 4: Average Weekly Wage by Industry

Industry	Westmoreland County	Virginia
All Industries	$635	$1,204
Agriculture, Forestry, Fishing and Hunting	$643	$775
Mining, Quarrying, and Oil and Gas Extraction	$0	$1,437
Utilities	$0	$2,061
Construction	$810	$1,278
Manufacturing	$771	$1,209
Wholesale Trade	$667	$1,687
Retail Trade	$416	$606
Transportation and Warehousing	$612	$994
Information	Non-Disclosable	$2,086
Finance and Insurance	$1,020	$1,891
Real Estate and Rental and Leasing	$532	$1,291
Professional, Scientific, and Technical Services	$1,060	$2,247
Management of Companies and Enterprises	$0	$2,257
Administrative and Support and Waste Mgmt.	$567	$910
Educational Services	Non-Disclosable	$873
Health Care and Social Assistance	Non-Disclosable	$1,067
Arts, Entertainment, and Recreation	$592	$720
Accommodation and Food Services	$324	$409
Other Services (Except Public Administration)	$430	$912
Unclassified	Non-Disclosable	$902
Federal Government	$1,141	$1,977
State Government	$521	$1,024
Local Government	$692	$922

Source: U.S. Bureau of Labor Statistics, Quarterly Census of Employment and Wages, October-December 2019

Unemployment and Labor Force Participation

According to the U.S. Bureau of Labor Statistics, the total annual average civilian labor force in Westmoreland County in 2019 was 9,574, of which 9,249 were employed and 325 were unemployed. The unemployment rate was 3.4%, compared to the Virginia state average of 2.7%. The labor force participation rate was 66.2%, compared to the Virginia state average of 63.4%.

Table 5: Age of Workforce by Industry (Westmoreland County)

Industry	14-18	19-21	22-24	25-34	35-44	45-54	55-64	65-99
All Industries	94	119	172	622	590	593	668	387
Agriculture, Forestry, Fishing and Hunting	6	10	12	32	27	40	47	33
Mining, Quarrying, and Oil and Gas Extraction	0	0	0	0	0	0	0	0
Utilities	0	0	0	0	0	0	0	0
Construction	0	8	16	39	49	51	50	20
Manufacturing	0	21	31	129	123	104	97	39
Wholesale Trade	0	3	0	8	10	10	14	5
Retail Trade	28	32	25	74	66	62	86	39
Transportation and Warehousing	0	0	0	3	7	7	3	3
Information	0	0	0	0	0	3	3	0
Finance and Insurance	0	0	4	9	11	11	13	8
Real Estate and Rental and Leasing	0	0	0	0	0	0	5	4
Professional, Scientific, and Technical Services	0	3	3	12	10	12	20	19
Management of Companies and Enterprises	0	0	0	0	0	0	0	0
Administrative and Support and Waste Mgmt.	5	4	4	25	16	16	12	11
Educational Services	0	3	21	103	94	110	124	81
Health Care and Social Assistance	4	5	13	55	57	53	58	30
Arts, Entertainment, and Recreation	4	4	5	9	16	12	21	27
Accommodation and Food Services	47	23	27	73	50	40	31	20
Other Services (except Public Administration)	0	3	4	13	27	19	26	17
Public Administration	0	0	7	38	27	43	58	31

Source: U.S. Census Bureau, Local Employment Dynamics Program, Quarterly Workforce Indicators, Oct-Dec 2019, all ownerships

Educational Attainment (Westmoreland County)

According to the U.S. Census Bureau's Local Employment Dynamics (LED) Program and Quarterly Workforce Indicators (QWI), of Westmoreland County's 2,824 workers age 25 and up in 2019, 522 (18.5%) had less than high school education, 904 (32%) had high school or equivalent education, 829 (29.4%) had some college education or an associate degree, and 569 (20.1%) had a bachelor's or advanced degree.

Commuting Patterns

According to the U.S. Census Bureau's OnTheMap application, the number of people who both worked and lived in Westmoreland County in 2018 was 1,618. 1,704 workers commuted to Westmoreland County daily, and 6,272 workers who lived in Westmoreland County commuted outside of it daily.

Table 6: Where Workers Are Commuting to Westmoreland County From

Area	Count	Share
Westmoreland County, VA	1,618	48.70%
Richmond County, VA	323	9.70%
Northumberland County, VA	158	4.80%
King George County, VA	139	4.20%
Stafford County, VA	101	3.00%
Spotsylvania County, VA	86	2.60%
Essex County, VA	72	2.20%
Fairfax County, VA	46	1.40%
Henrico County, VA	44	1.30%
Charles County, MD	42	1.30%
All Other Locations	693	20.90%

Source: U.S. Census Bureau, OnTheMap Application, 2018

Table 7: Where Workers in Westmoreland County Are Commuting To

Area	Count	Share
Westmoreland County, VA	1,618	20.50%
King George County, VA	495	6.30%
Fairfax County, VA	440	5.60%
Richmond County, VA	314	4.00%
Spotsylvania County, VA	294	3.70%
District of Columbia, DC	277	3.50%
Stafford County, VA	258	3.30%
Prince George's County, MD	254	3.20%
Charles County, MD	238	3.00%
Henrico County, VA	225	2.90%
All Other Locations	3,477	44.10%

Source: U.S. Census Bureau, OnTheMap Application, 2018

Table 8: Employment by Industry

Industry	Westmoreland County	Virginia
All Industries	3,426	3,980,809
Agriculture, Forestry, Fishing and Hunting	212	12,862
Mining, Quarrying, and Oil and Gas Extraction	0	6,005
Utilities	0	10,812
Construction	172	204,000
Manufacturing	537	241,927
Wholesale Trade	64	110,170
Retail Trade	427	413,131
Transportation and Warehousing	20	130,503
Information	Non-Disclosable	68,136
Finance and Insurance	61	143,855
Real Estate and Rental and Leasing	16	44,926
Professional, Scientific, and Technical Services	80	439,950
Management of Companies and Enterprises	0	81,269
Administrative and Support and Waste Mgmt.	81	252,116
Educational Services	Non-Disclosable	66,687
Health Care and Social Assistance	Non-Disclosable	454,558
Arts, Entertainment, and Recreation	60	53,335
Accommodation and Food Services	279	349,699
Other Services (Except Public Administration)	106	140,258
Unclassified	Non-Disclosable	21,039
Federal Government	50	183,029
State Government	104	149,964
Local Government	793	390,648

Source: U.S. Bureau of Labor Statistics Quarterly Census of Employment and Wages, October-December 2019

Table 9: Number of Businesses by Industry

Industry	Westmoreland County	Virginia
All Industries	411	280,595
Agriculture, Forestry, Fishing and Hunting	19	1,799
Mining, Quarrying, and Oil and Gas Extraction	0	297
Utilities	0	374
Construction	52	21,402
Manufacturing	10	6,875
Wholesale Trade	15	11,207
Retail Trade	47	25,510
Transportation and Warehousing	14	5,608
Information	Non-Disclosable	4,692
Finance and Insurance	11	12,000
Real Estate and Rental and Leasing	9	9,183
Professional, Scientific, and Technical Services	24	42,880
Management of Companies and Enterprises	0	2,295
Administrative and Support and Waste Mgmt.	17	14,377
Educational Services	4	3,546
Health Care and Social Assistance	65	45,709
Arts, Entertainment, and Recreation	7	3,208
Accommodation and Food Services	27	17,708
Other Services (Except Public Administration)	44	29,920
Unclassified	5	12,893
Federal Government	10	2,049
State Government	12	2,319
Local Government	18	3,450

Source: U.S. Bureau of Labor Statistics Quarterly Census of Employment and Wages, October-December 2019

Economic Trends

Table 10: Unemployment Rate by Year

	Westmoreland County	Virginia	United States
2010	8.3%	7.3%	9.6%
2011	7.5%	6.6%	8.9%
2012	7.1%	5.9%	8.1%
2013	6.7%	5.6%	7.4%
2014	6.3%	5.1%	6.2%
2015	5.3%	4.4%	5.3%
2016	4.5%	4.0%	4.9%
2017	4.4%	3.7%	4.4%
2018	3.6%	2.9%	3.9%
2019	3.4%	2.7%	3.7%

Source: Virginia Employment Commission

Table 11: New Hires by Industry

Industry	Westmoreland County	Virginia
Agriculture, Forestry, Fishing and Hunting	15	1,893
Mining, Quarrying, and Oil and Gas Extraction	0	571
Utilities	0	668
Construction	9	26,536
Manufacturing	88	18,620
Wholesale Trade	8	8,622
Retail Trade	76	86,998
Transportation and Warehousing	0	29,789
Information	Non-Disclosable	7,865
Finance and Insurance	0	8,798
Real Estate and Rental and Leasing	6	5,878
Professional, Scientific, and Technical Services	4	43,208
Management of Companies and Enterprises	0	6,667
Administrative and Support and Waste Mgmt.	17	78,131
Educational Services	61	20,432
Health Care and Social Assistance	36	55,829
Arts, Entertainment, and Recreation	9	10,381
Accommodation and Food Services	56	93,738
Other Services (except Public Administration)	24	17,850
Public Administration	14	7,150

Source: U.S. Census Bureau, Local Employment Dynamics Program, Quarterly Workforce Indicators, Oct-Dec 2019

Table 12: Turnover Rate by Industry

Industry	Westmoreland County	Virginia
All Industries	14.4%	9.1%
Agriculture, Forestry, Fishing and Hunting	16.2%	14.3%
Mining, Quarrying, and Oil and Gas Extraction	N/A	6.8%
Utilities	N/A	3.1%
Construction	9%	9.7%
Manufacturing	32.8%	6.2%
Wholesale Trade	28.1%	7%
Retail Trade	12.7%	10.7%
Transportation and Warehousing	0%	9.2%
Information	Non-Disclosable	7.3%
Finance and Insurance	0%	5.6%
Real Estate and Rental and Leasing	0%	9.5%
Professional, Scientific, and Technical Services	0%	8.6%
Management of Companies and Enterprises	0%	6.4%
Administrative and Support and Waste Mgmt.	12%	16.5%
Educational Services	4.4%	3.8%
Health Care and Social Assistance	9.2%	8.5%
Arts, Entertainment, and Recreation	14%	17.2%
Accommodation and Food Services	32.9%	16.6%
Other Services (Except Public Administration)	11.3%	10.5%
Public Administration	5.1%	4.6%

Source: Virginia Employment Commission, October-December 2019

Table 13: Age of Workforce by Year (Westmoreland County)

	14-18	19-21	22-24	25-34	35-44	45-54	55-64	65-99
2019	94	119	172	622	590	593	668	387
2018	94	138	157	641	595	615	674	386
2017	98	143	173	663	587	645	677	347
2016	98	127	166	661	572	648	654	322
2015	85	124	195	637	544	646	643	306
2014	82	120	186	596	531	624	639	287
2013	68	128	168	619	527	682	631	291
2012	69	142	182	612	523	711	660	302
2011	73	138	166	540	527	679	563	267
2010	98	150	192	590	573	760	594	302

Source: U.S. Census Bureau, Local Employment Dynamics (LED) Program, Quarterly Workforce Indicators (QWI), October-December 2010-2019, all industries

Table 14: Educational Attainment by Year (Westmoreland County)

	Less than high school	High school or equivalent	Some college or Associate degree	Bachelor's degree or advanced degree
2010	495	905	816	591
2011	493	877	770	505
2012	492	909	806	539
2013	497	891	802	544
2014	485	877	783	530
2015	501	882	796	541
2016	519	910	833	566
2017	526	916	848	580
2018	524	916	854	581
2019	522	904	829	569

Source: U.S. Census Bureau, Local Employment Dynamics (LED) Program, Quarterly Workforce Indicators (QWI), workers age 25 and up

Self-Employment

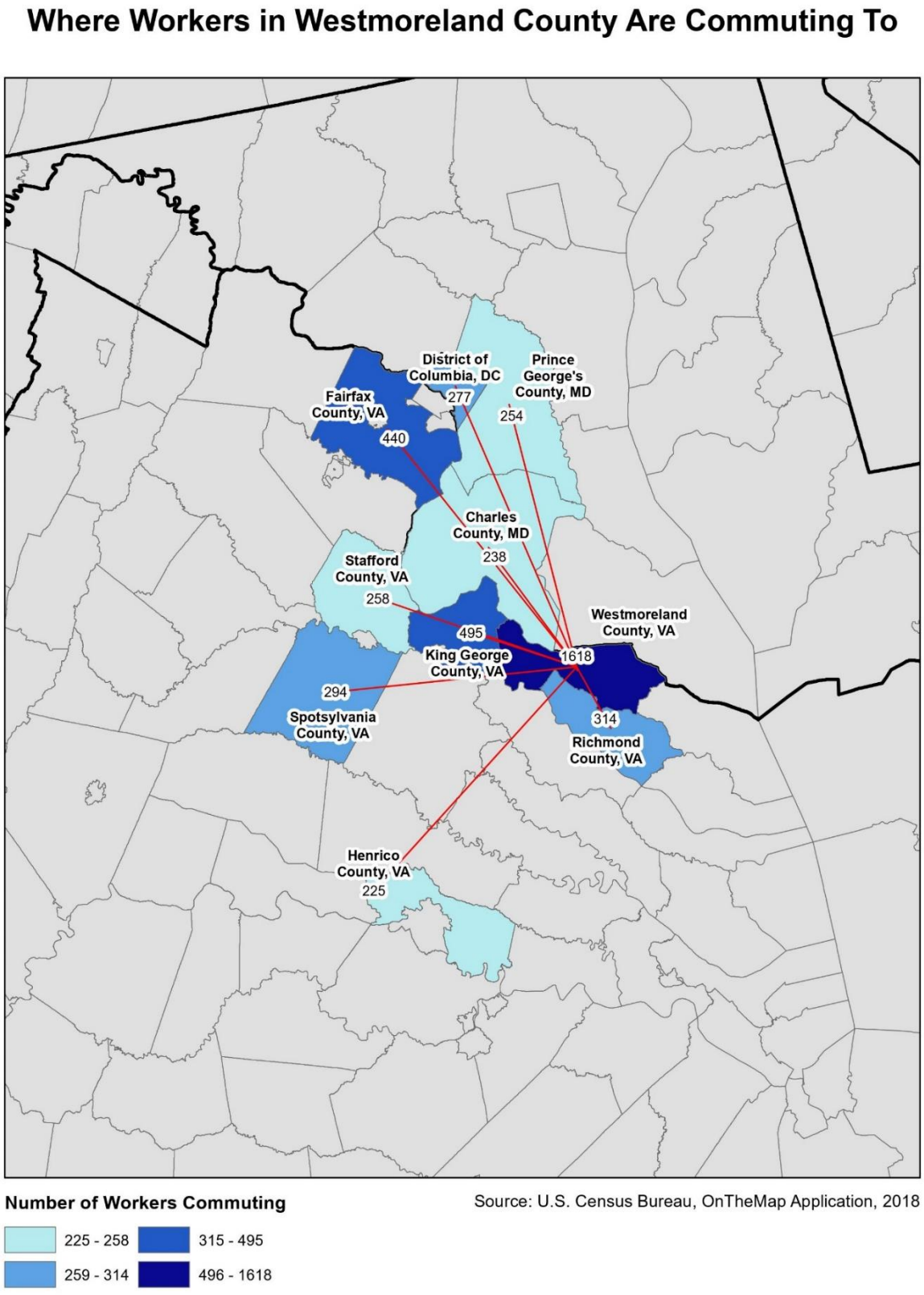
According to the U.S. Census Bureau's American Community Survey 5-Year Estimate, the self-employment rate in Westmoreland County in 2019 was 13.9%, compared to the Virginia state average of 8.3%.

Table 15: Self-Employment Rate by Year

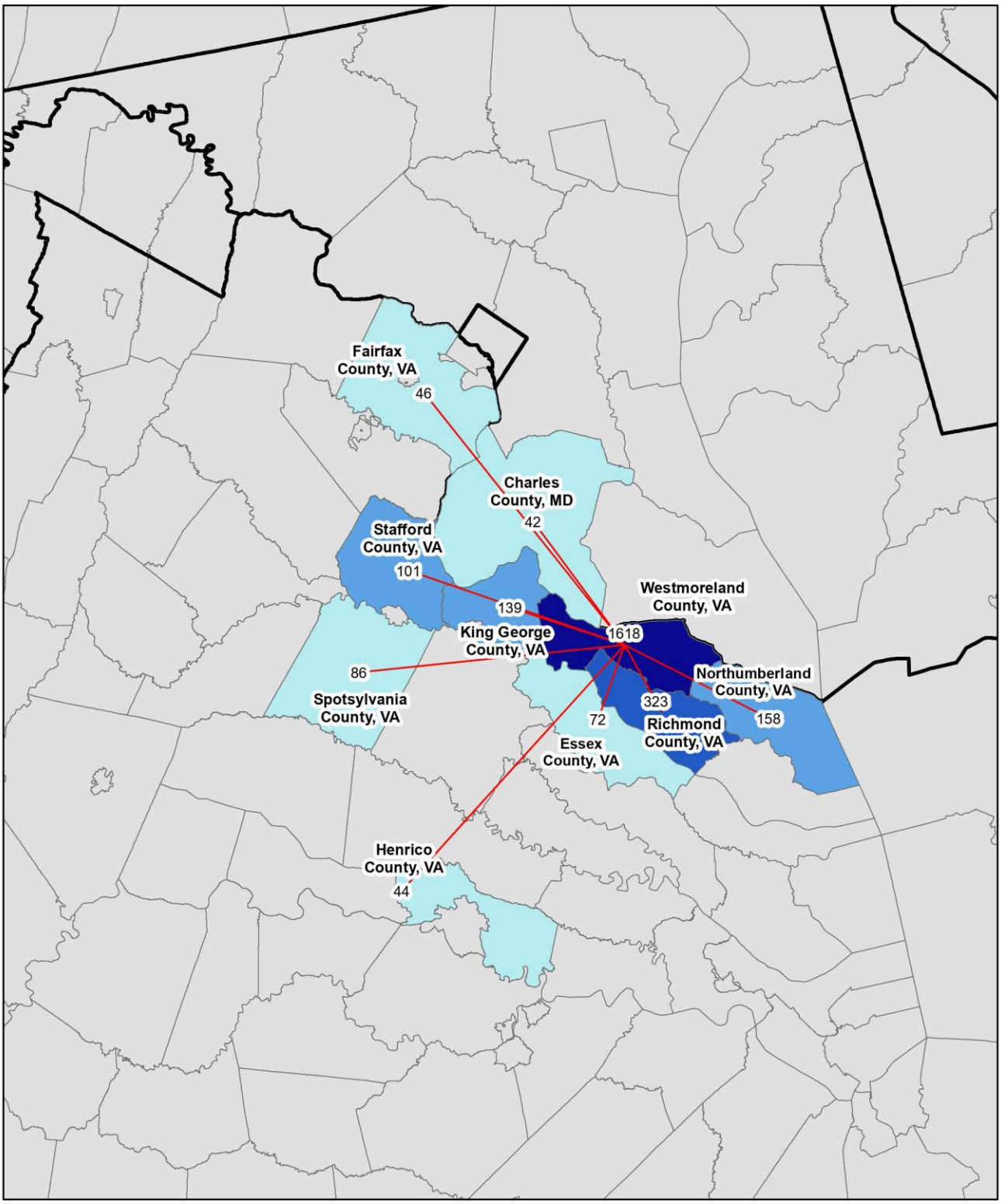
	Westmoreland County	Virginia
2019	13.9%	8.3%
2018	14.1%	8.3%
2017	12.1%	8.2%
2016	13.3%	8.3%
2015	13.6%	8.2%
2014	13.7%	8.2%
2013	13.7%	8.3%
2012	13.3%	8.3%
2011	10.6%	8.4%
2010	10.8%	8.6%

Source: U.S. Census Bureau, American Community Survey 5-Year Estimates

Mapping economic trends



Where Workers in Westmoreland County Are Commuting From

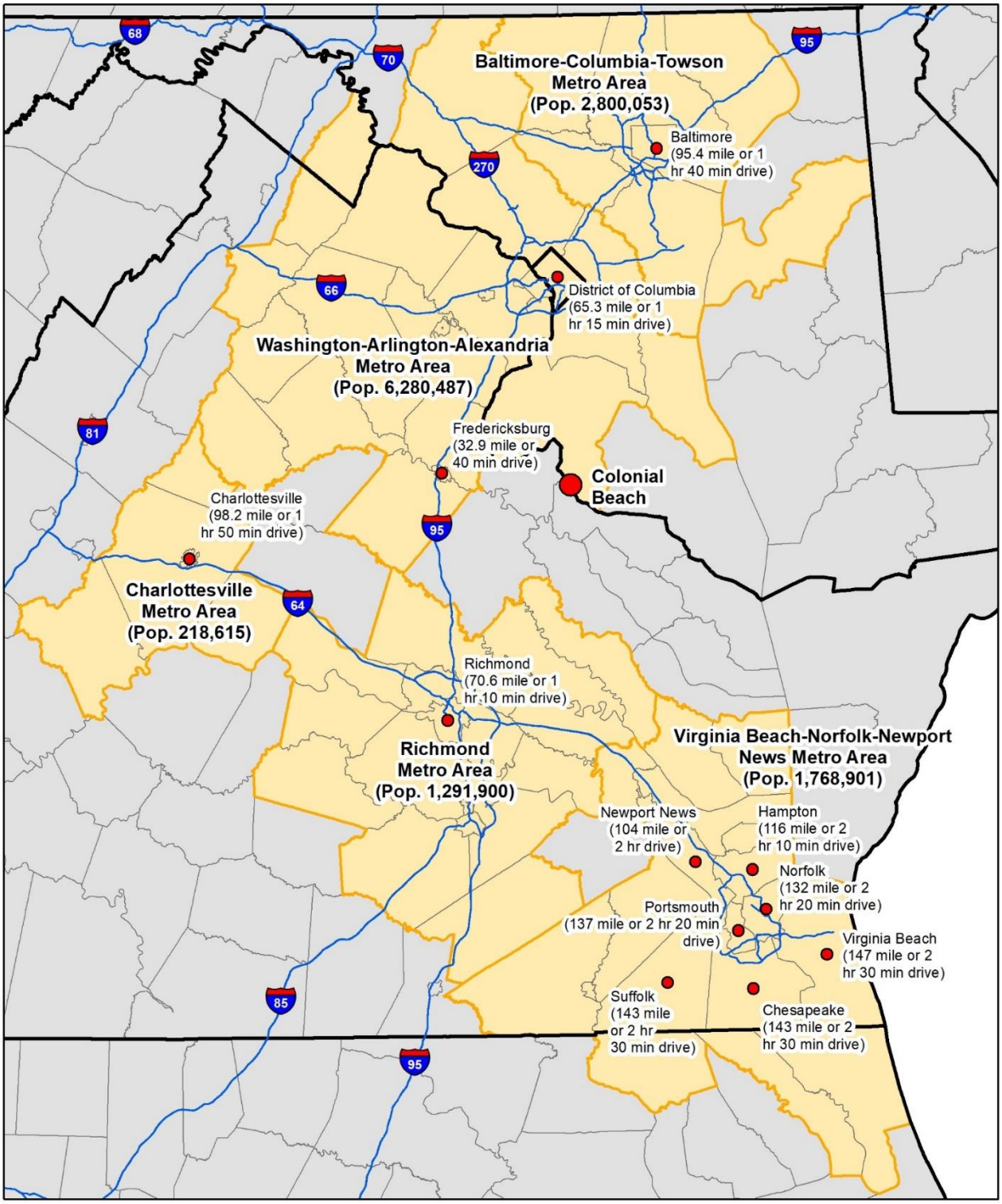


Number of Workers Commuting

- 42 - 86
- 87 - 158
- 159 - 323
- 324 - 1618

Source: U.S. Census Bureau, OnTheMap Application, 2018

Distance to Major Population Centers from Colonial Beach



Population Source: U.S. Census Bureau American Community Survey 5-Year Estimates, 2019

Community perspectives: The present and future of Colonial Beach

The Town of Colonial Beach sought community perspectives from a variety of sources, including a land use diagnostic questionnaire for the Town Council and Planning Commission (Appendix C, D, and E), public workshops (Appendix F), an informal public website survey (Appendix G), neighborhood meetings (Appendix H), and a water bill questionnaire (Appendix H and I). Community perspectives gathered from these sources are discussed in the following sections.

Perspectives of the Town Council, Planning Commission, and Chamber of Commerce

When asked about the current strengths of the Colonial Beach comprehensive plan, members of the Town Council, Planning Commission, and Chamber of Commerce. Primary themes included:

- Information and definitions for those living in Colonial Beach,
- Maps and exhibits to show connections between different Town facilities and services,
- A plan for the future, and
- A focus on green space, design, and environmental issues.

The Town Council, Planning Commission, and Chamber of Commerce members were also asked which aspects of the town plan they felt had not worked well in the past. Primary themes that arose with considering areas of improvement included:

- A need for a greater emphasis on business and economic development,
- A lack of information on Town culture and infrastructure,
- A need for a greater focus on shoreline refurbishment,
- A need to use more statistical information and data in planning, and
- A lack of clarity and cross-referencing in some parts of the document.

In addition, members discussed the importance of ensuring that the plan is put into use. In order to achieve this, they noted the importance of a plan that is readable, concise, agreed upon by Town leaders, and well-explained.

Members of the Town Council, Planning Commission, and Chamber of Commerce were also asked to consider land use issues that the Town is currently facing and that it will face in the future. Many responses were similar to those mentioned when discussing what had not worked well in the past, including disagreement between different members of leadership, a need for an increased attention to infrastructure, a need for an increased focus on shoreline protection, and a need for an increased focus on economic development (development along Colonial Avenue was emphasized). Other land use issues that were noted include:

- The need for a strategic plan and/or conceptual plan for each neighborhood,
- The need for adequate and quality housing,
- The need to create alternative energy plans,
- The need for improved recreation facilitates, parking, and walking/biking/golf cart paths,
- The annexation of property belonging to Westmoreland County,

- Increased attention to tourism and off-season activities,
- Increased internet presence, and
- An increased number of public/private partnerships.

Finally, members of the Town Council, Planning Commission, and Chamber of Commerce were asked which specific aspects of the plan required changes. These line-by-line suggestions may be found in Appendix D (Town Council and Planning Commission) and Appendix E (Chamber of Commerce), and have been addressed in this updated version of the plan.

Perspectives from Colonial Beach residents and visitors

A public workshop was conducted in 2016 (Appendix F) and a survey was conducted in 2017 (Appendix G) to better understand how residents of Colonial Beach as well as visitors to Colonial Beach view the town.

In 2016, public workshop participants were asked for their perspectives of the Town's 1) business and recreation content, 2) appearance, and 3) functionality. When it came to business and recreation content, participants felt that the following initiatives would lead to improvements:

- Additional attractions for tourists (e.g. stores, restaurants, tours and hotels),
- Frequent and interesting events,
- An increased focus on historic preservation (including design and designations), and
- Child and youth programs.

Suggested initiatives to strengthen the Town's appearance included:

- Attractive buildings and facilities,
- Appropriate signage, lighting, trash cans, and benches,
- Green space,
- Public art, and
- Creatively showcasing the Town's history.

Suggested initiatives to strengthen the Town's functionality included:

- Clean and safe streets and sidewalks,
- Adequate parking,
- Underground utility lines,
- Improved water management,
- Improved internet access, and
- Handicap accessibility in all areas.

The 2017 online survey first asked participants what they felt Colonial Beach was known for. Responses primarily focused on tourism activities, including the beaches, water access and watersports, restaurants, and history. Several participants also noted that they appreciated the relaxed, small-town atmosphere.

When asked about the activities in which they typically engage when visiting Colonial Beach, purchasing items from a store and eating at a restaurant were the top two activities. Attending events and staying at

a hotel were less frequent activities, and no participants reported staying at a Bed and Breakfast. Participants also said that they would be more likely to visit Colonial Beach if there was more parking, more seafood restaurants, and an increased sense of vibrancy.

Survey participants were also provided with space to share any additional information that they wanted others to know. Several participants noted aspects of the Town that they enjoyed, such as the small-town feel and art. Others made suggestions for ways that the Town could be improved, with several stating that Colonial Beach has a great deal of potential. These suggestions include:

- Becoming more pedestrian and bicycle friendly,
- Additional activities for small children, and
- Improved "curb appeal" of the Town.

Additionally, there were mixed responses regarding growth. While some participants suggested an increase in businesses, activities, and events, others seemed to prefer to have less growth and remain smaller and quieter.

Finally, neighborhood meetings (Appendix H) and a water bill questionnaire (Appendix H and Appendix I) were conducted in 2018 to gain further insight. When asked about improvements to the vision statement, participants suggested an increased focus on history and the beach. When asked about their vision for the Town's future, the most popular suggestion was additional business and restaurants. Other prominently discussed themes included family activities, beach activities, medical care, creating an attractive boardwalk, Town cleanup, historical tours, and tax control.

Summary of community perspectives

Overall, members of the community appreciate all that Colonial Beach has to offer. The beach, the art, the small-town feel, and local businesses are enjoyed by residents and tourists alike. Colonial Beach is also seen as a town with potential. By investing further in businesses and events, by offering activities and attractions for young children, by increasing the Town's curb appeal, and by investing in infrastructure, this potential could be fully reached.

Capital Improvement Plan

Introduction

The Capital Improvement Plan (CIP) is an important tool in putting the Comprehensive Plan into Action. The Comprehensive Plan identifies Capital Items and is used by the Town Manager to create a long-term CIP that is reviewed and prioritized yearly. Ideally the Commission maintains contact with Town Manager to review the CIP annually. The CIP assists the Town Manager and Council in development of the yearly budget.

Capital Projects are large in scale and can involve multiple phases over time. It has been consistently and clearly put forth by the citizens of Colonial Beach that infrastructure is a great concern and high priority. Infrastructure can take the form of buildings, roads, pipes for all types of water, or improvements that ensure resiliency. All these undertakings require extensive planning, coordinated execution, and considerable financial investment. The CIP gives a prioritization for the available resources and a scorecard to evaluate progress on committed projects.

The CIP is intentionally high level with budgetary and scope approximations. Due to the size, timeline, and nature of Capital Projects, costs and budgets should be established for every need identified in the CIP. Part of the purpose of the Capital Improvement Plan is to identify the desired end state and provide targets to plan for. As planning proceeds, scopes and budgets are revised. As projects are completed and move forward the CIP must be updated and clarified annually as the needs of the citizenry change and evolve.

We must do the most good for the most citizens with the resources available. That is the lens that the CIP must be viewed under.

- Projects and specific needs are from the Town's Comprehensive Plan and Town staff
- The Town's portion of funding is currently primarily derived from the sale of Town owned Property
- Input is given by Department Heads and Town Staff to the Town Manager in the preparation of each year's CIP
- All Capital Improvements are to enhance the Health, Safety, and Welfare of Colonial Beach Citizens
- $50,000 Minimum Criteria for Physical Assets, $20,000 Minimum for Technology

The following Capital Improvement Plan is prepared by the Colonial Beach Planning Commission with the authority provided by § 15.2-2239 of the Code of Virginia.

Priority list of capital improvements (2021-2022)

The following Capital Improvement Plan is prepared by the Colonial Beach Planning Commission with the authority provided by § 15.2-2239 of the Code of Virginia.

Table 16: Capital Improvement Plan

Need	Department	Town cost	Priority/ timeframe	Funding Sources	Comments	Project type/stage
Robin Grove Shoreline	Public Works	$200,000	0-1	NOAA Sea Grants & Virginia Institute of Marine Science	In Bid for Construction to start Summer 2021	Environmental/ In Progress
Stormwater management plan - phase II & III (See Below)	Planning/ Public Works	$250,000	0-2	Town and Grants	Compiling GIS Data ongoing Engineering to commence 2021	Health and Safety, Environmental/ In Progress
Improvements to bike and golfcart paths, including Monroe birthplace	Public Works	Scope to be created	0-2	TAP Grant, VDOT	Plans for Bike path around the Point in Comp Plan, Bi-annual funding available	Welfare/Planning
Utility mapping and tech upgrade	Public Works	Proposals Being Solicited Estimated $100,000	0-2	User Fees	Evaluating Vendor Offerings for Cost and Scope	Health and Safety/ In Progress
Connect Meadows and Classic Shores; Extend Dwight Avenue	Public Works	Estimated $450,000	0-2	Town and VDOT	To Allow Emergency Traffic in case Rt. 205 is blocked	Health and Safety/ Planning
Classic Shores drainage improvements/ greenscape / recreation area	Planning/ Public Works	Estimated $300,000	0-2	Town	Potentially part of the extension of Dwight Ave	Health and Safety, Welfare, Environmental/ Planning
New municipal facility with police station	Town Council/Staff	Scope to be created	0-3	Town	Town owned facility(s) to house municipal and police services	Health and Safety, Welfare / Planning

Streetscape for Colonial Avenue	Planning/ Public Works	$50,000	0-1	VA Tourism & VDOT Grants & Donations Virginia Beautiful Grant	Plans available DCB Memorials for each cluster of plants	Welfare/In Progress
Community Center ADA Updates	Town Council/ Staff	$50,000	0-1	Town	Scope is being determined	Health and Safety, Welfare/Planning
Central drainage area	Public Works		1-5	Town		Health and Safety/ Planning
Wastewater treatment plant, tank, and tower refurbishment	Public Works		1-5	Town		Health and Safety/ Planning
Trash truck	Public Works		0-1	Town		Health and Safety/ Planning
Shoreline erosion control	Public Works		0-5	Town		Environmental, Health and Safety/Planning
Classic Shores buildout	Planning / Public Works		0-5	Town		Welfare/Planning
Town pier	Town Council/ Public Works		0-2	Town		Welfare, Environmental/ Planning
Parking lot improvement	Public Works		0-2	Town		Welfare, Environmental/ Planning
Town website improvement	Town Council/ Staff		0-1	Town		Welfare/Planning

Project Types

Health and Safety - intended to prevent the injury, illness, or worsening of circumstances where injury or illness has occurred
Welfare - intended to enhance the quality of life for Town citizens and visitors
Environmental - intended to repair, enhance, or prevent future degradation of the natural and build surroundings in Town

Project Stages

Planning - Goal has been identified with scope, action plan, and budget being developed
In Progress - Resources have been committed and the project is ongoing

Stormwater Management Plan Phases Outline

- Phase I – Survey and assessment. Includes aerial survey and on ground assessment.
- Phase II – data integration and mapping – translating the information into usable GIS maps and information for engineering analysis.
- Phase III – engineering analysis and scope definition with implementation planning. Complete engineering assessment design and recommendations based on existing conditions and future planning needs. Identification of the individual drainage areas for tailored management.
- Phase IV – High impact, need and urgency-based implementation of initial plan phases. Executing the parts of the plan that will have the largest return on money, time, and material. Combination of Public Works and 3rd Party Contractors.
- Phase V – Strategic, long term, large scale major implementation of upgrades. Executing engineered scope of work by large 3rd party contractors.
- Phase VI – Ongoing integration of the upgrades and existing conditions into GIS and municipal data collection with periodic engineering review and analysis.

Code of Virginia

Code of Virginia § 15.2-2239. Local planning commissions to prepare and submit annually capital improvement programs to governing body or official charged with preparation of budget.

A local planning commission may, and at the direction of the governing body shall, prepare and revise annually a capital improvement program based on the comprehensive plan of the locality for a period not to exceed the ensuing five years. The commission shall submit the program annually to the governing body, or to the chief administrative officer or other official charged with preparation of the budget for the locality, at such time as it or he shall direct. The capital improvement program shall include the commission's recommendations, and estimates of cost of the facilities and life cycle costs, including any road improvement and any transportation improvement the locality chooses to include in its capital improvement plan and as provided for in the comprehensive plan, and the means of financing them, to be undertaken in the ensuing fiscal year and in a period not to exceed the next four years, as the basis of the capital budget for the locality. In the preparation of its capital budget recommendations, the commission shall consult with the chief administrative officer or other executive head of the government of the locality, the heads of departments and interested citizens and organizations and shall hold such public hearings as it deems necessary.

Present land use

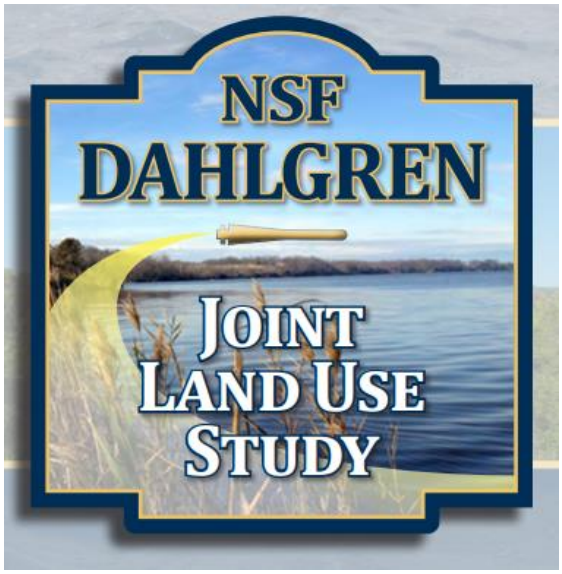
The town of Colonial Beach is developed in a narrow, elongated area along a 4-mile stretch of the Potomac River. Open water surrounds the town's 1,473 acres on three sides.

Surrounding Land Uses

Portions of Westmoreland County that surround the town are primarily made up of residential, agriculture, rural, and undeveloped land. Residential land uses are comprised of both rural residential developments and dense single-family developments.

In 2015 Colonial Beach participated in the NSF Dahlgren Joint Land Use Study, which aimed to advocate for a proactive approach to encourage increased communication about decisions relating to land use regulation, conservation and natural resource management issues affecting both the community and the military. Collaborative land use strategies emerging from this study included:

- Develop an intergovernmental coordination element to include in comprehensive plans that set provisions for the multiple land management agencies and their roles and responsibilities.
- Be aware of potential incompatible development along the Potomac River Test Range and near the Range Stations.
- Create a Military Compatibility Area Overlay District (MCAOD) containing Military Compatibility Areas (MCAs) that reflects the types and intensity of land uses compatible with military activities at NSF Dahlgren and the PRTR.
- Update local jurisdiction comprehensive plans to include military.
- Create compatibility policies that support and promote compatible land uses.
- Update zoning maps and zoning codes to be consistent with any changes or updates resulting from the comprehensive plan.
- Update comprehensive plans with the compatibility policy set
- Develop an Enhanced Real Estate Disclosure Statement that includes appropriate information about NSF Dahlgren operations, the NSF Dahlgren Operating Area, use of civilian airports, and potential noise and vibration effects that may result from certain types of events and activities performed.
- Identify noise compatibility policies for inclusion in local planning documents.
- Amend the building codes to require sound attenuation that achieves an interior noise level of 45 dB for any new buildings or significant changes or additions to current buildings located within areas identified as experiencing noise levels greater than 60 dBA.
- Develop a Sound Attenuation Retrofit Program that provides guidance on sound attenuation standards for retrofitting existing residential and commercial facilities.



The full report is available at
https://www.charlescountymd.gov/home/showpublisheddocument/2326/637182528665400000

Town Land Uses and Percentages

The town occupies approximately 1,473 acres of land. Of that, the primary land use is residential, occupying 39 percent of the total land area. Vacant land runs a close second making up 30 percent of the town's land area. Commercial land uses make up the least percentage of the town's area, approximately 7 percent. Town, churches, and other community facilities are mostly concentrated in the Central Area.

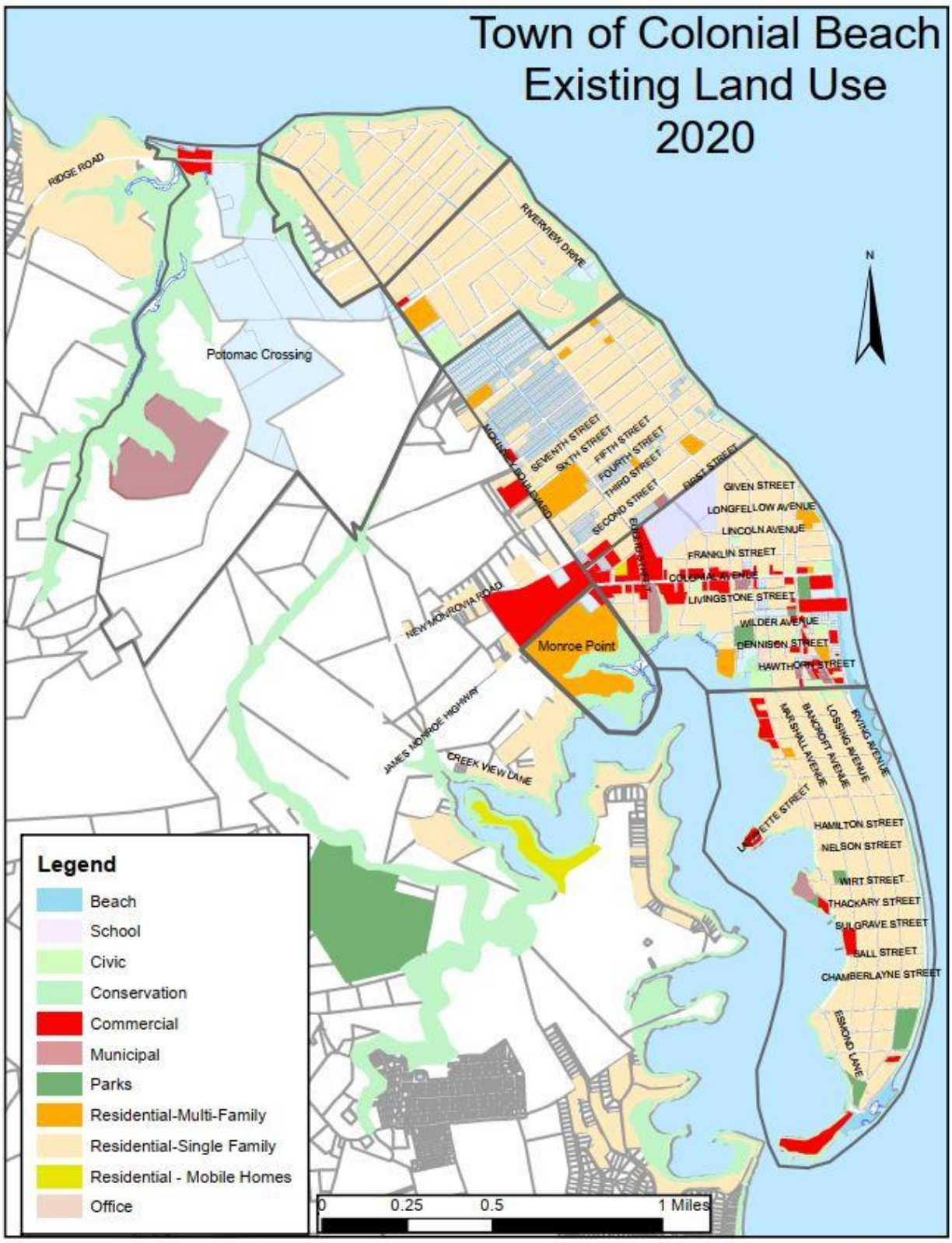
Categories of land use

- Civic - Includes all churches and health care centers.
- Parks - Includes all publicly owned open space not including the beach.
- Beach - Includes all publicly accessible beaches.
- School - Includes all school owned buildings and property.
- Municipal - Includes all government establishments, such as town-owned buildings and lands, town offices, post offices, rescue squads and fire departments.
- Commercial - Includes all types of business establishments such as retail / wholesale, services, offices, marinas, and lodging.
- Residential Multi-Family - Includes all multi-family buildings, including attached single-family dwellings.
- Residential Single-Family - Includes all single-family detached dwellings.
- Residential Mobile Homes - Includes all mobile home parks and/or mobile villages.
- Vacant/Undeveloped/Agriculture Lands - Includes parcels that remain unoccupied by structures and are presently undeveloped or in agricultural use.

It is important to note that no industrial lands exist within the town. There are heavier types of commercial uses, such as seafood management; boat repair, and businesses with outdoor storage and equipment which can be found within the Town limits.

Existing land use 2020

Existing Land Use Map



Public Open Space

Public open space within the town includes all public beach areas. Public green space is primarily located in the Point and Central Neighborhoods. The Meadows and Bluff Neighborhoods of town do not have any public open space. Public beach areas are in the Central Area and south along the Point Neighborhood.

Per information gathered during community workshops and surveys, increasing green space in Colonial Beach is a priority of residents and visitors.

Commercial Uses

The Town's historic business district was centered at Hawthorne Street and North Irving Avenue, where the retail and restaurant establishments remain. Over time, commercial activity gradually shifted from downtown to a six- block segment of Colonial Avenue and the Beachgate Shopping Center. The conversion of residential properties into office and retail functions continues along blocks of Colonial and Washington Avenues.

The Downtown of Colonial Beach is from the Boardwalk to Washington Avenue, between Colonial Ave and Boundary Street. Police Department is housed in the top of the BB&T/Truist Bank. The shores of Monroe Bay continue to support the multiple marinas and restaurants often integrating seasonal seafood with marinas and restaurants. Lodging facilities including Cottages, Bed and Breakfasts, Motels and boarding houses are scattered throughout the entire area of colonial Beach.

Residential Uses

Residential development consists of primarily single-family detached dwellings with isolated higher density developments scattered throughout town. Many of the higher density (multi-family) developments are not significantly out of scale with the surrounding neighborhood. Care should be taken to ensure that they complement rather than become a detriment to the surrounding neighborhoods.

Due to the town's early days as a summer resort, many of the residential properties were built on small lots as summer cottages. These types of houses still dominate much of the Point Neighborhood and are seen as an historical attribute and add to the unique character of the town. However, there also has been a significant amount of redevelopment on these lots with larger homes. Larger housing types should assist in the preservation and character of this important architectural attribute of the town's housing.

The banks of the Potomac River and Monroe Bay is water dependent commercial businesses currently coexisting within otherwise residential areas. These water dependent businesses, such as boat servicing and repair, the transport of seafood, restaurants, and marinas, are an important component in the economics of the town and should be preserved.

Undeveloped and Vacant Land

Of the Town's total land area, approximately 30 percent remains undeveloped. Most of the vacant land is found in the Classic Shores Neighborhood and northern and western portions of Colonial Beach. Land development should follow the stipulations as laid out in the Comprehensive Plan and Town Ordinances. Potomac Crossing has the potential to be developed and could bring significant opportunity for both mixed income and residential/commercial development.

Beachfront and Historic Resort Commercial Area

New resort and commercial development occurred as a result of a Revitalization Grant which in turn highlighted the need for continual focus on the economic revitalization of the historic resort commercial area and the boardwalk.

From the Revitalization efforts formed the non-profit Downtown Colonial Beach, a Virginia Main Street affiliate, with the goal to preservation-based economic and community development that follows the Main Street Approach by the National Main Street Center. Colonial Beach Commercial Historic District, a six-block commercial area and two gateway roads in Town of Colonial Beach, Virginia, were officially listed to the Virginia Landmarks Register (VLR). The decision by the Virginia Department of Historic Resources, the commonwealth's official list of places of historic, architectural, archaeological and cultural significance, means that the historic district is now eligible to be nominated for listing on the National Register of Historic Places.

Downtown Colonial Beach Inc. (DCB), spearheaded the process. Listing a property in the state or national registers is honorary and sets no restrictions on what property owners may do with their property. Designating a property is foremost an invitation to learn about and experience authentic and significant places and provides owners the opportunity to pursue historic rehabilitation tax credit improvements to the building. Tax credit must comply with the Secretary of Interior's Standards for rehabilitation.

Colonial Beach Commercial Historic District is the only site to encompass a late-1800s resort. The District, which lies just west of the lower Potomac riverfront, was the business center of a fully planned resort, where steamboat wharves, amusements, bathhouses, hotels and restaurants lined a bustling boardwalk and beach during the late 19th Century. Founded as a summer retreat for prominent Washingtonians, and platted in 1882, Town of Colonial Beach is home to historically-significant commercial, civic and residential buildings from all phases of the Town's history. Building styles include Folk Victorian, Queen Anne, Gothic Revival, Classical, Craftsman, Art Deco, Farmhouse, and Vernacular architecture.

Waterfront Lands, Tidal Marshes, and Open Water Areas

These areas collectively represent one of Colonial Beach's greatest assets. Future land use development should make best use of these resources through continued improvements to park and recreation facilities, dedication of sensitive areas for community open space, and application of CBPA safeguards to ensure water quality protection.

These natural lands also serve as potential risks for the economic future of the Town. Much of the recurrent flooding caused by storms or sea level rise will occur in these areas, as well as other low-lying areas. Because of this, it is important to develop resiliency goals that take into account the risks of these areas as well as the benefits.

Development of maps that outline the areas of the Town most at risk for recurrent flooding is a major goal. As described in the Environmental/Natural Resources concern listed on p. 90, the Town should incorporate Low-Impact Development standards into the planning and permitting process.

In addition, the Town's tidal marshes and other aquatic submerged vegetation serve to protect the Town from storm surges and recurrent flooding. In the future, the Town should look to expand SAV on low-energy shorelines where possible in order to expand the resiliency of the Town and its new developments to flooding.

See the Environment and Special Issues section on p. 90 for additional information.

Recreational Facilities

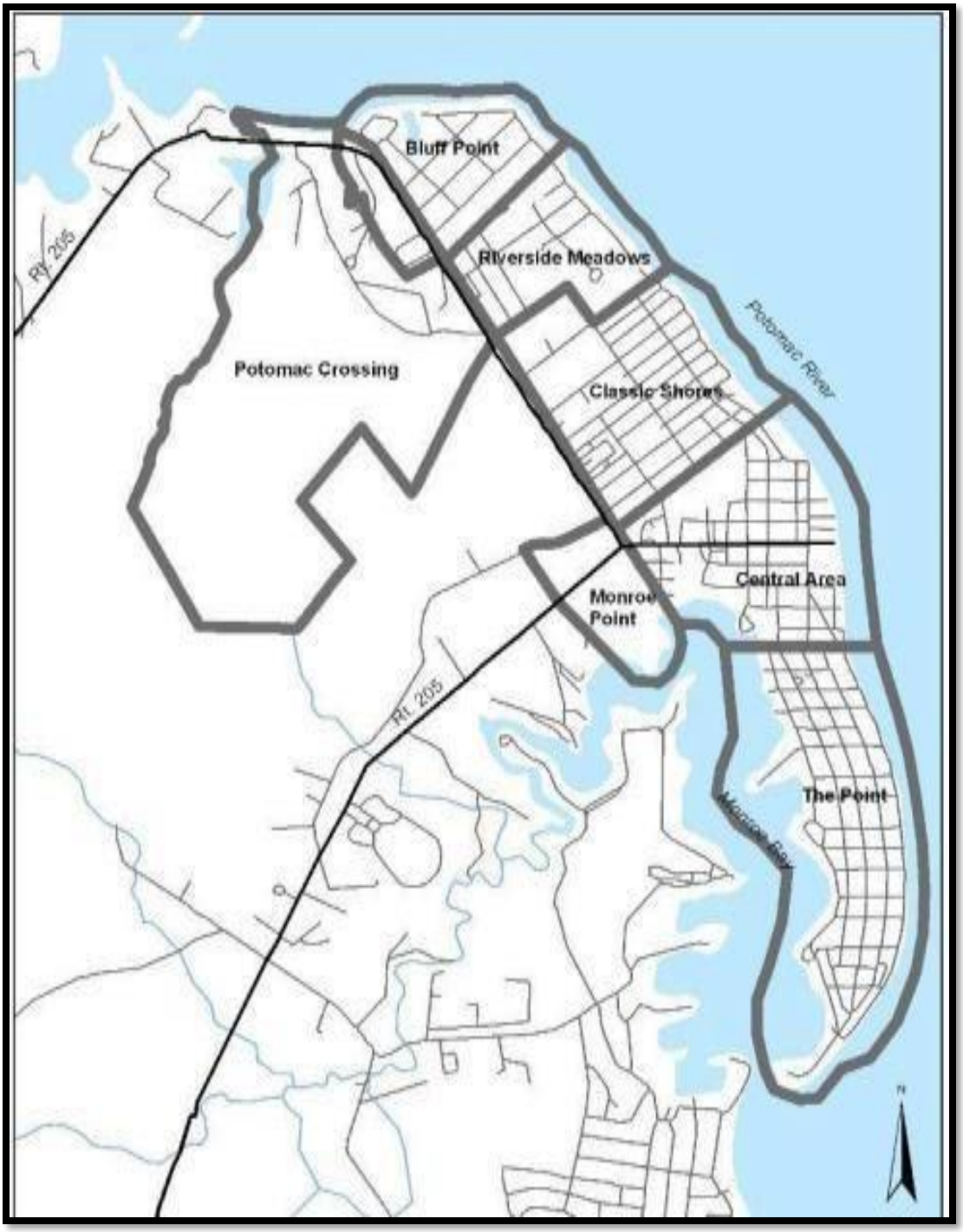
The encouragement and development of both private and public recreational opportunities is a major planning issue for the Town. Entertainment facilities in the historic core and boardwalk areas should be encouraged. The establishment of the Torrey Smith Recreational Park has added to the open space in the Central area and the Robin Grove Dog Park has as added another open space in the Point area. In addition, plans are being made for adding a linear park in the north side of town, which would provide a well-lit walking path and golf cart path.

The embrace of green infrastructure and other uses of green open space may lead to additional recreational facilities for the citizens of the Town to enjoy. Family-orientated and multi-generational facilities would greatly benefit the health and wellness of the community year-round.

Planning areas

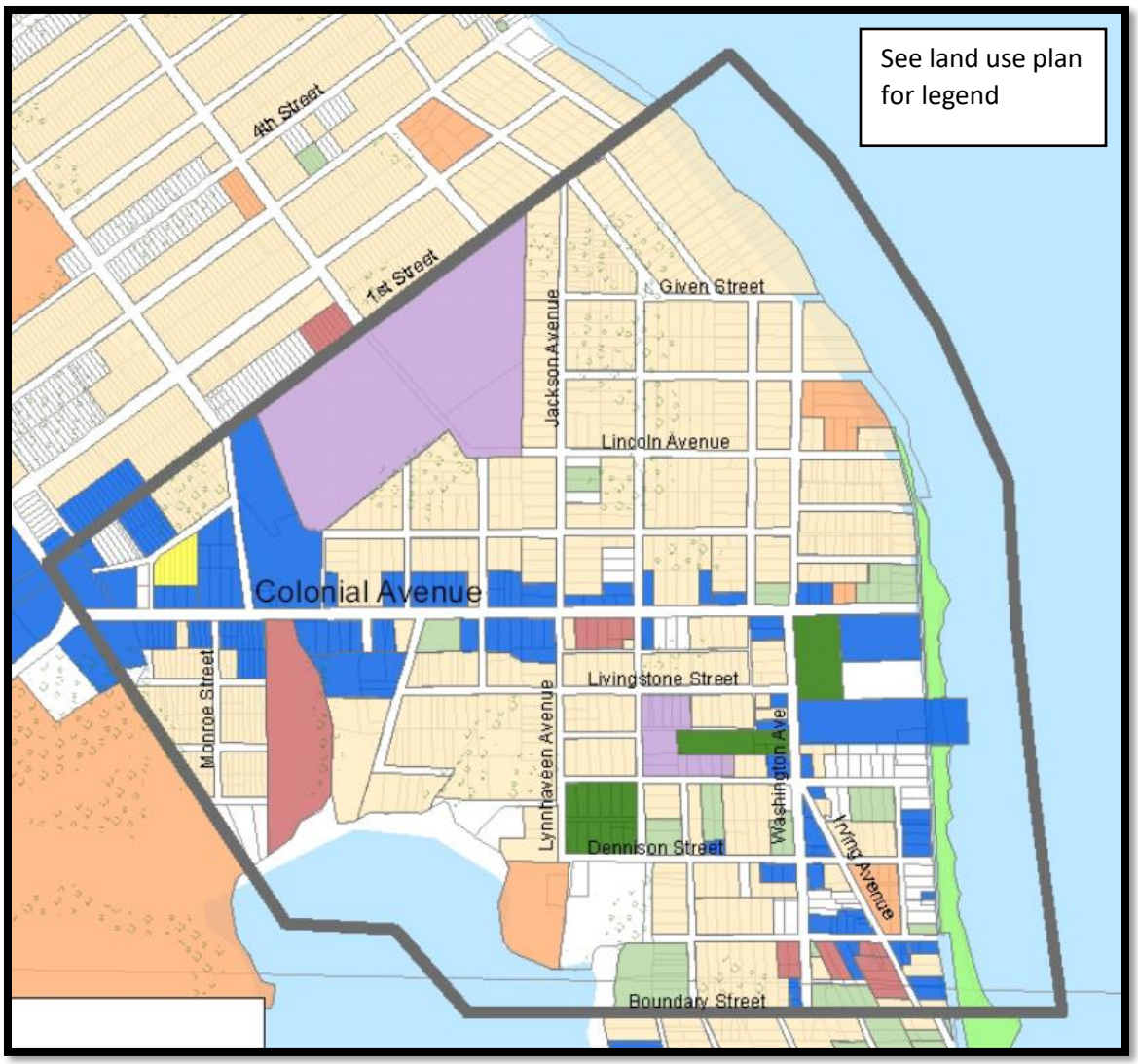
This section provides a more detailed understanding of the town's seven (7) Neighborhoods as depicted in the map below. Each area is unique in its own identity and have both opportunities and challenges to face in the years ahead. Planning areas are established to provide the opportunity for context specific guidelines and recommendations to be made for various areas that share similar attributes.

Colonial Beach Neighborhoods Map



Central Area

The Central Area is located between Boundary Street and 1st Street and is the most diverse planning area encompassing a wide range of land uses. The individual land uses areas that make up the planning area are discussed in more detail below.



Historic Resort Commercial / Boardwalk

The Historic Resort Commercial/ Boardwalk area is generally located between Washington Avenue and the beachfront. The area has always had a wide range of land uses and is the historic commercial area. The shift of commercial land uses over the years to Colonial Avenue and Rt. 205 has resulted in a significant amount of vacant / undeveloped property in this area. The continued presence of municipal and public offices such as Police Station School Board Office, Library, and the Potomac River Fisheries Commission, has assisted in keeping a constant stream of individuals in the area. In addition to the public buildings, there is a mix of commercial establishments (mostly retail, restaurants, and hospitality businesses) and residential units in this area. Much of the vacant / undeveloped land is owned by the town, which offers a unique opportunity to spur and guide revitalization of the area through various

public improvements. Two hotels, the newly renovated Riverview Inn and the River's Edge Hotel offer guest accommodations.

A $27 million-dollar four phased development project, by Dodson Management Group will bring 30 new townhomes to the downtown along with two additional condo buildings on the boardwalk and one mixed use project to include retail space.

A beachfront boutique hotel is also part of the project, along with historic renovations of several buildings for retail and office use.

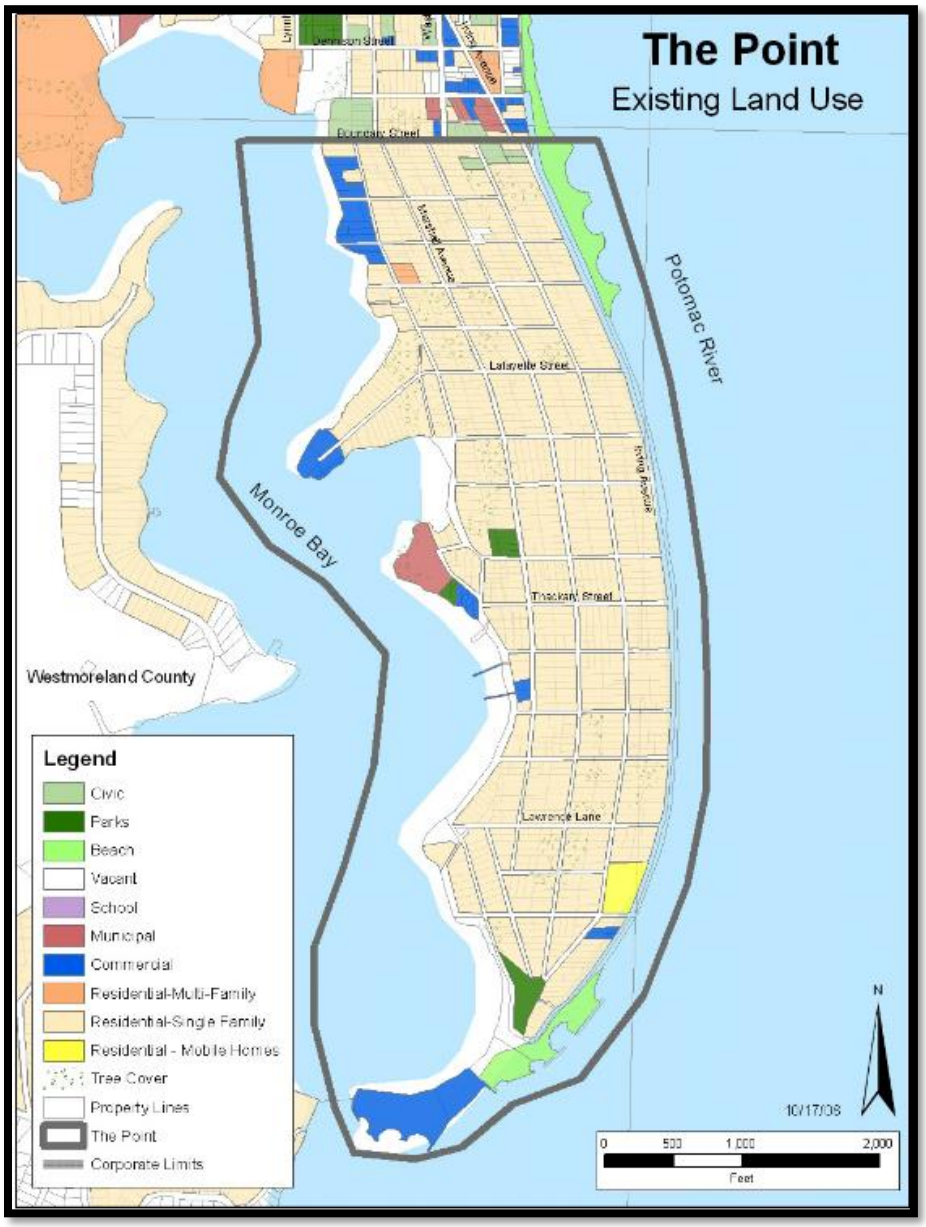
The efforts of Downtown Colonial Beach are the continued work of the original revitalization grant award and continue to focus on economic development of this key area. The Colonial Beach Commercial Historic District designation will incentivize rejuvenating much of the Central Area through State and Federal Tax credits as well.

Colonial Avenue

The Colonial Avenue Corridor also has a variety of uses: Residential, Business and Public/Semi Public. It too is currently plagued by vacant and undeveloped commercial properties. Much of Colonial Avenue is currently zoned C-1 Commercial with the existing residential units being "grandfathered" nonconforming uses. The eastern terminus of Colonial Avenue on the Potomac River offers unique opportunities for development and visual sight lines. The need for continued vigilance on Colonial Ave is warranted to maintain a clean and bright entrance to the Town. Many of the suggestions of the Revitalization Plan should assist the Town in developing a better and attractive entrance to town, as should receiving a historic designation through the Virginia Main Street Program (see p. 131).

The Point Neighborhood

This area is generally described as the area south of Boundary Street. While most housing units are of single- family residential type, there are scattered multi-family and commercial uses as well. The commercial uses are primarily made up of water dependent establishments, such as marinas and boat docks.

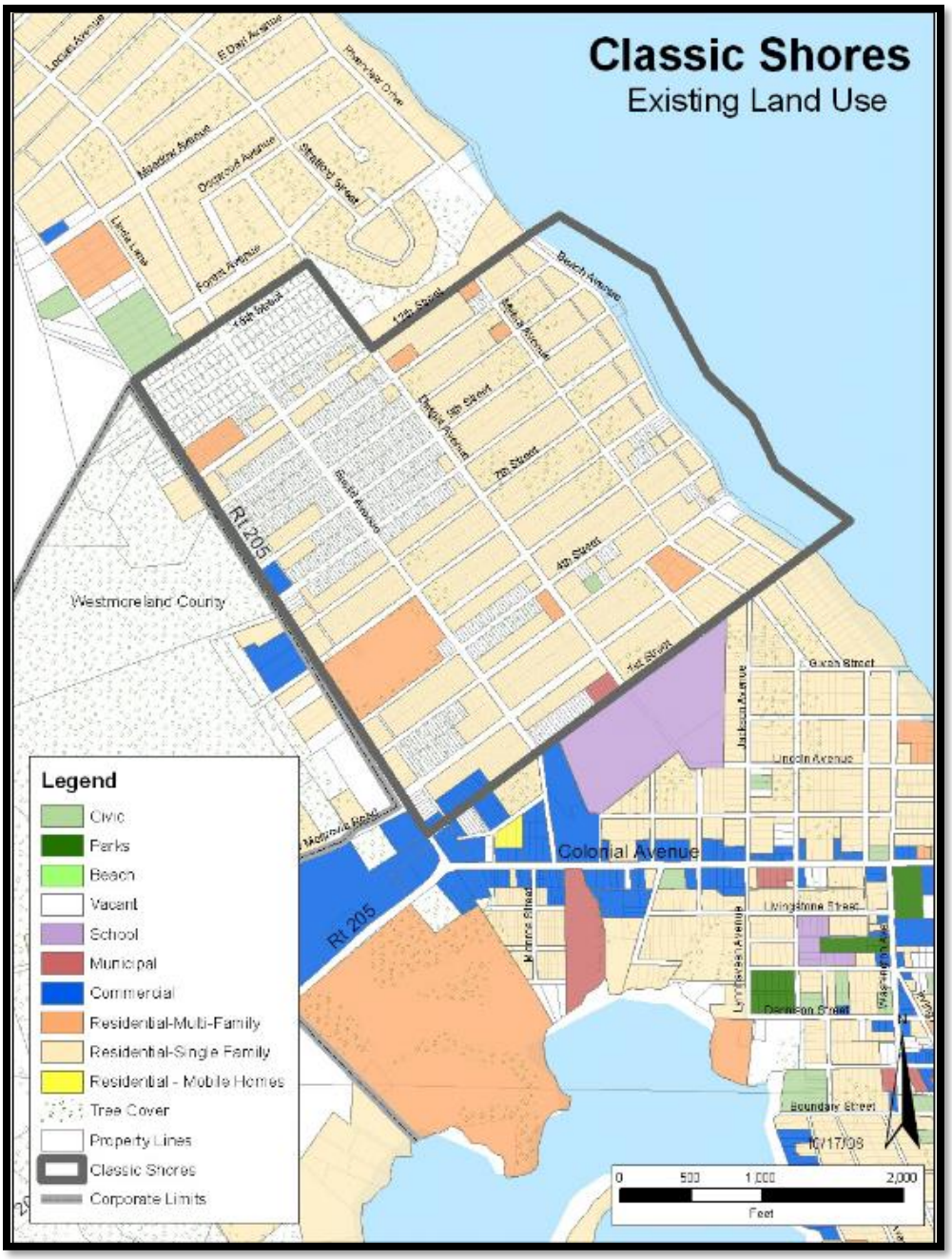


This area has historical significance to the town. It was one of the first residential areas established and is primarily made up of single family lots averaging approximately 5000 square feet. A number of these homes are "vacation-cottage" type homes occupied primarily in the summer months. A Survey of Architectural Resources in Westmoreland County, Virginia was done in 2001 that identified a number of historical properties in the area. They are primarily wood frame vernacular buildings with front porches and usually a porch on more than one elevation. These buildings, along with many others in the area, make up the unique cottage type character of The Point. There has been a trend in recent years to convert these smaller cottages into year-round permanent, larger, and more modern dwelling units.

The Point has the most recreational activities located within its borders. In addition, the Point has the recently updated public boat ramp with parking for vehicles and for boat trailers.

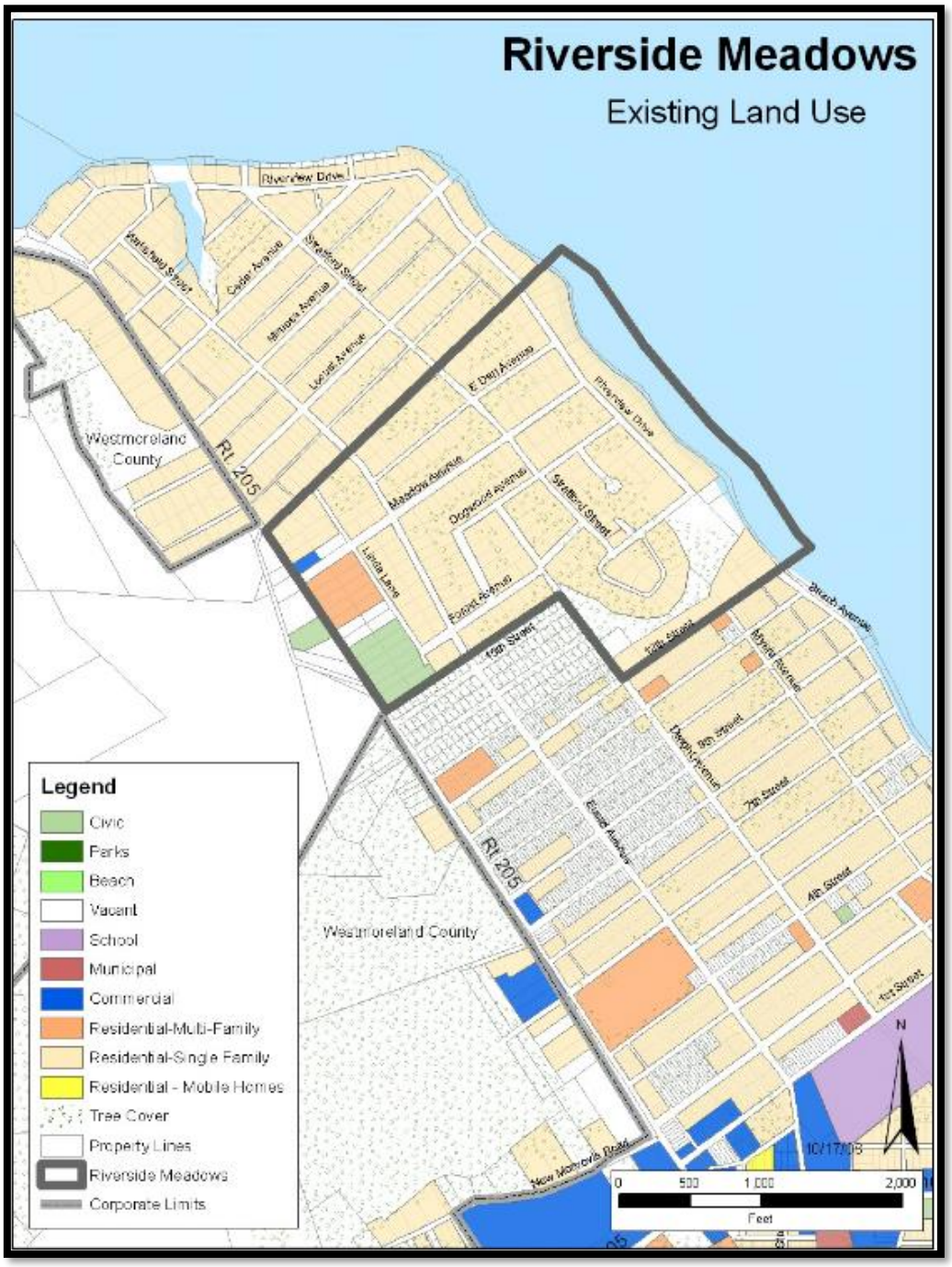
Classic Shores Neighborhood

Classic Shores is located between 1st Street and the southern boundary of Riverside Meadows subdivision (15th street), with a linear park connecting Classic Shore and the Meadows neighborhoods. The small standard size (25' widths) were originally designed to sell as affordable vacation homes for residents of Northern Virginia and Washington, D.C. This scale lot is generally now doubled to accommodate a 3 bedroom typical single family home of the neighborhood today. There are many vacant parcels primarily surrounding several street rights of way that are plated but not yet improved. Multi-family apartment units add residential diversity to this neighborhood.



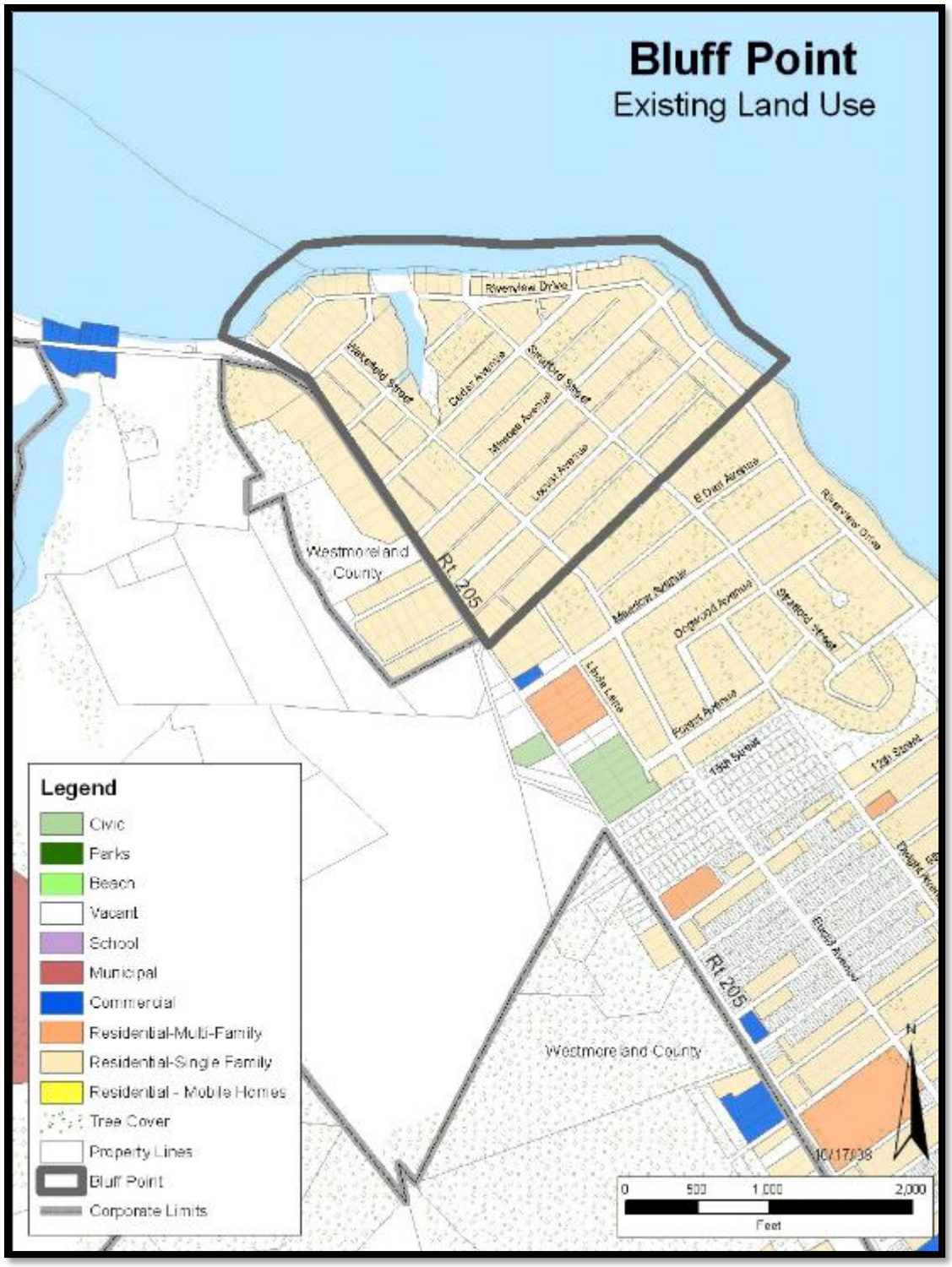
Riverside Meadows Neighborhood

The Riverside Meadows neighborhood is a new, primarily residential area on the northern edge of town, adjacent to the Potomac River. It is bordered on the southwest by Rt. 205 where a few non- residential land uses are present: the Mary Washington Health Care Center and a small office. The residential lots are large compared to other parts of town. This area, at present, does not have any public parks or playgrounds, although an informal bikeway along the unimproved Euclid Avenue right of way connects this neighborhood to southern parts of town, providing a safe route for bicyclists, golf carts and pedestrians. Until either Dwight Avenue or Euclid Avenue is constructed through, vehicular traffic will be forced to use Route 205 to reach the central shopping and public service areas of the Town. Most of Riverside Meadows is zoned R-1 residential with a minimum lot size of 12,000 square feet.



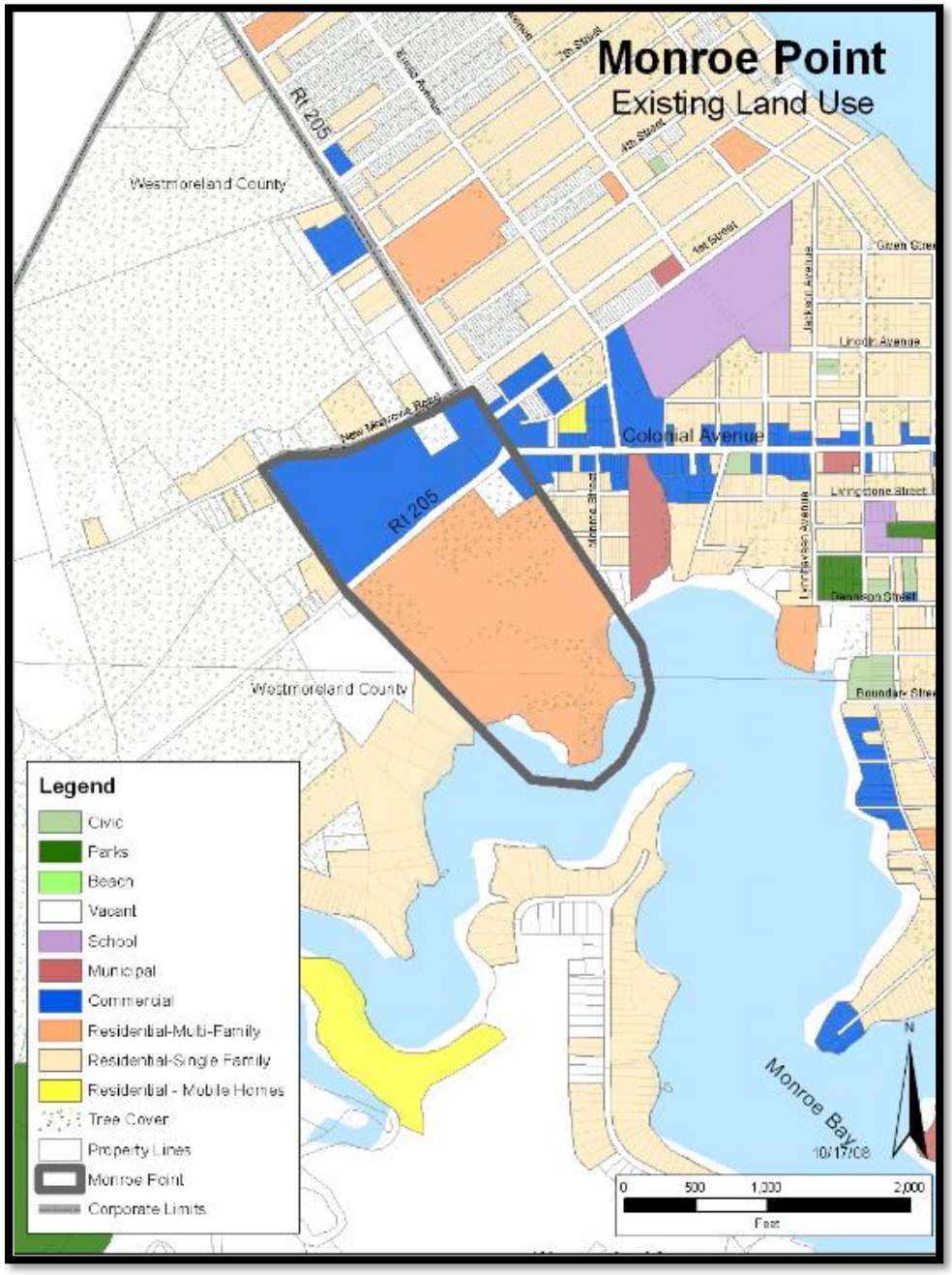
Bluff Point Neighborhood

The Bluff Point neighborhood is an established residential area. It is in the northernmost portion of town, bordered on the north by the Potomac River and on the west by Rt. 205. As in Riverside Meadows, the residential lots are large compared to other parts of town. This area does not have any public parks or playgrounds. Bluff Point is internally connected to the Riverside Meadows neighborhood to the south, but until either Dwight Avenue or Euclid Avenue is constructed through to the Classic Shores area, traffic will be forced to use Route 205 to reach the central shopping and public ser vice areas of the Town. All Bluff Point is zoned R-1 residential with a minimum lot size of 12,000 square feet.



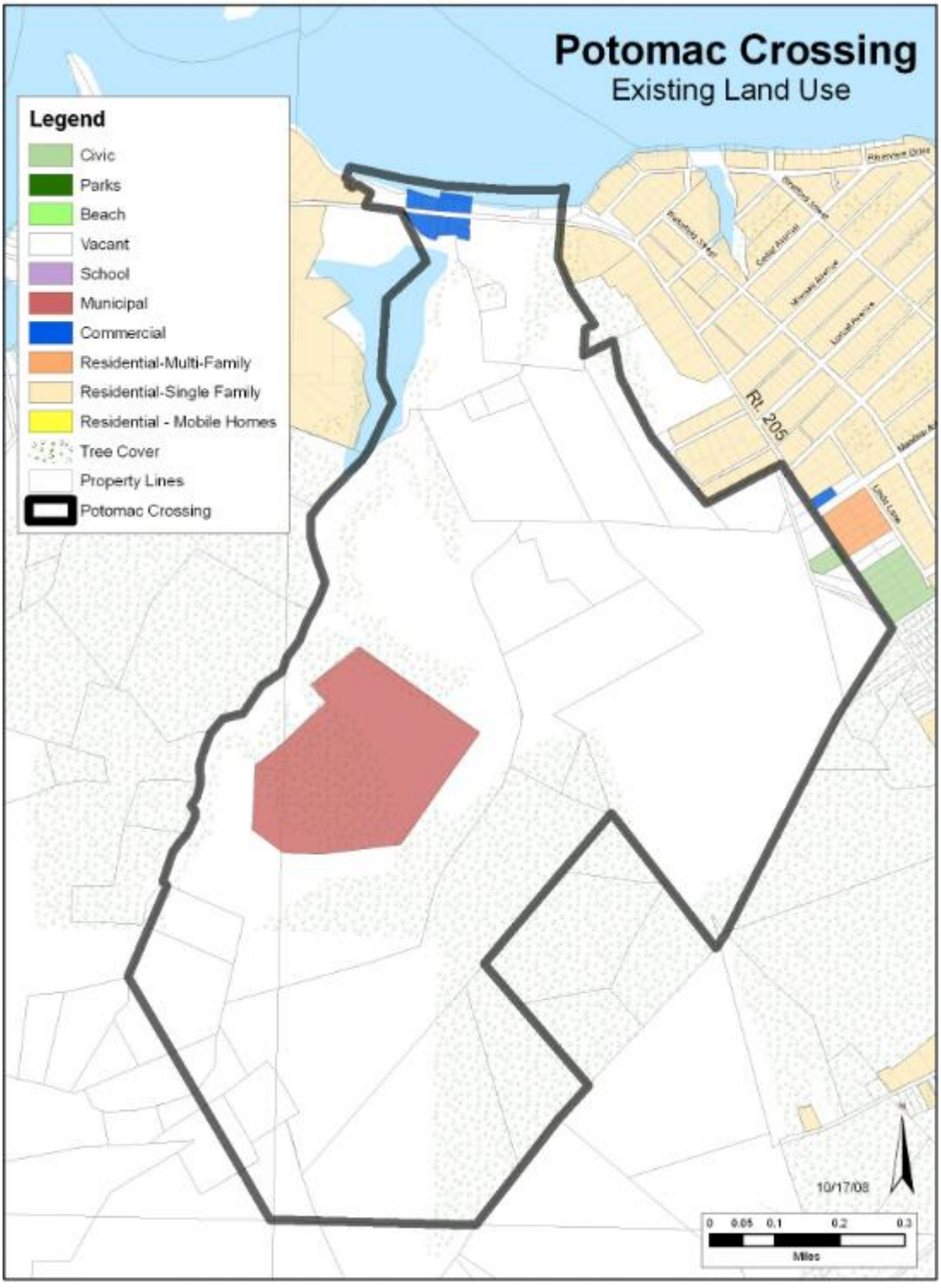
Monroe Point Neighborhood

The Monroe Point area is the most recently developed section in town. It forms the gateway to town for those traveling north on Rt. 205. It is made up of the Beachgate Shopping Center and surrounding commercial businesses on the north side of Rt. 205 and the Monroe Point mixed use development currently only comprised of town homes. This area does not have any public parks or playgrounds, but the Monroe Point community offers a private community marina to its residents. This neighborhood is not internally connected to other parts of town and in the future plans should be developed to make this happen. Zoning and ordinances should be reviewed to maintain this area as a multi-family unit plan and not a Commercial development area.



Potomac Crossing Neighborhood

The Potomac Crossing area is the newest addition to the town's corporate limits. The area was supposed to be developed as a Planned Unit Development (PUD) with residential units with a golf-course, though there has been a suggestion to amend the PUD zoning to allow for less than 15 acres currently established (see p. 18). The original designation was for housing and a golf course, but it was never built. The Town's Public Works Department and Water Treatment Plant are located here.



Community development needs and ideas

Historic Resort/Commercial/Boardwalk District

- Upgrade/Improvement of the current Boardwalk.
- Upgrade/Improvement of the streets, sidewalks, lighting, and overall appearance.
- Additional parking areas needed during peak summer session.
- Additional recreational facilities.
- Continued beachfront stabilization and replenishment.
- Redevelopment of vacant/underutilized/deteriorating buildings and land.
- Improve North side of the beach and Boardwalk.
- Improve Town Pier (engineering study/replacement).
- Develop a Comprehensive Parking Plan.

Colonial Avenue Corridor

- Improved streetscape, sidewalks, plantings, lighting.
- Beautification efforts to assist local businesses along the corridor with planting and caring for indigenous trees.
- Redevelopment of vacant/underutilized residential and commercial structures.
- Additional parking in some areas of the Corridor.
- Blight needs continual attention.
- Improved wayfaring signage.

Central Area

- Continuation of the Minor Home Repair Program, which has improved housing conditions for eligible town residents – there are several houses which are in poor structural condition.
- Improvements to the streetscape – sidewalks, curb, and gutter where they are in disrepair or nonexistent.
- Increased buffering between commercial uses along Colonial Avenue and the adjoining residential lots to the rear.
- Lighting & informational signage.
- Blight ordinance reviewed and enforced.

The Point

- Preservation of the unique cottage type and Victorian character of the neighborhood.
- Preservation of the maritime commercial establishments.
- Shoreline stabilization – Roads along the Potomac River and Monroe Bay have experienced and will continue to have erosion related problems.
- Street and Sidewalk Improvements – Many of the streets and sidewalks are in extremely poor condition.

Classic Shores Area

- Continuation of the Minor Home Repair Program, which has improved housing conditions for eligible town residents – there are several houses which are in poor structural condition. These homes detract from the overall quality of the neighborhood.
- Improvement of several unimproved rights of way.
- Bicycle and pedestrian installation and/or upgrade.
- Enhanced lighting.
- Enhanced park and recreational facilities.
- Community Development Needs in the Riverside Meadows Area
- Interior connection route for vehicles to Central Area without having to travel on Route 205.
- Implement water mitigation plans.
- Recreational amenities and public open space.
- Improved stormwater drainage.
- Lighting.

Bluff Point Area

- Interior circulation route for vehicles eliminating travel on Route 205 for access.
- Upgraded utilities (water and sewer).
- Recreational amenities and public open space.
- Improved stormwater drainage.
- Lighting along roads, especially major roads

Monroe Point Area

- Gateway enhancements (plantings and signage) are needed along Rt. 205.
- Golf cart accessible path across Rt. 205 to the Beachgate Shopping Center.
- Golf cart/pedestrian/bicycle path linkage to the rest of town via Colonial Avenue.

Housing

Overview

Colonial Beach is in a good position for expansive residential growth. As the housing section of the Comprehensive Plans will show Colonial Beach has an abundance of residential in-fill lots, and pre-approved building lots that put the town in an excellent position to take advantage of the strong regional economy. Additionally, this residential growth will drive commercial development without significant cost for infrastructure improvements. The sources of the data for this report are cited with the charts and tables they refer to.

Given a modest estimate of 22 new residential building permits issued annually, the projected growth will be in excess of a 14 percent increase by 2030. However, Colonial Beach has the potential for even more growth with in-fill especially in Classic Shores and development potential at Potomac Crossing.

A key finding of the study indicates Colonial Beach has a sufficient number of affordable housing units for very low-income households earning less than 30 percent to 60 percent of the area median income (AMI) annually. While there are some individuals on the subsidized housing waiting list the access to these units is timely. In fact, nearly 10 percent of the occupied housing units in Colonial Beach have some form of rent subsidy whereby residents pay no more than 30 percent of their income toward housing, which nearly corresponds with the 10 percent rate of poverty.

The data shows there are three main categories of residents that need to be addressed. The first category are those individuals, ages 18-24, and ages 65+, who together comprise 44 percent of the population. This segment of the population has an average household size of 1.9 for homeowners, and 2.5 for renters and would benefit from having access to smaller, attached multifamily one-and-two-bedroom units. The data shows that Colonial Beach has an abundance of single-family homes which comprise 83 percent of the housing stock and limits the diversity of housing options for a sizable portion of the population.

The second category of need are those households paying 30 percent or more of their income toward housing costs. One in four homeowners in Colonial Beach and two out of three renters pay more than 30 percent of their income toward housing costs. These costs have increased 176 percent for homeowners, and 68% for renters since 2000, while wages have increased 70 percent. Additionally, smaller multifamily units would be more cost beneficial to this segment of the population.

The third category of need is the lack of workforce housing that is housing that would be affordable to those earning between 60 percent and 120 percent of the AMI. These residents make up approximately 30% of Colonial Beach's households and they earn between $32,273 and $64,546 annually. Housing that would be affordable to this segment of the workforce range in cost of $90,364 to $180,728, yet the median value of housing in Colonial Beach is $241,500. Only one in four houses in Colonial Beach are valued below $175,000. Communities with decreased homeownership rates are more subject to blight and economic instability. This population would likewise benefit from smaller attached multifamily homeownership opportunities and rental options.

For a full listing of housing-related definitions, please see Appendix K.

Statement of intent

The following housing study is designed to provide key housing information needed to determine future housing demands for the Comprehensive Plan in Colonial Beach. Under Virginia code, jurisdictions are required to create the following mandate…"The comprehensive plan shall include the designation of areas and implementation of measures for the construction, rehabilitation and maintenance of affordable housing, which is sufficient to meet the current and future needs of residents of all levels of income in the locality while considering the current and future needs of the planning area within which the locality is situated" (Code of Virginia § 15.2-2223). The data contained in the following Colonial Beach housing assessment was obtain by a draft 2017 Comprehensive Plan Housing Update by Land Studio and uses the most recent American Community Survey (ACS) 2017 5-Year Estimates census information because it provides a more consistent comparison of housing characteristics across a broad spectrum of data as compared to the limited information available in the 2018 census estimates by Land Studio in 2017.

Introduction

Housing is considered affordable when the cost is no more than 30 percent of household income. The Colonial Beach housing plan seeks to ensure an adequate supply of housing for the community's needs so that all segments of the community have access to housing and that planning efforts contribute to a sustainable community. The availability of safe decent housing that is affordable to all citizens within a community indicates how economically stable it is. This is what attracts new residents, seasonal buyers, and new businesses.

Housing is a basic need of all citizens. The quality of housing within a community indicates its economic stability and social values. The town of Colonial Beach is an important residential center in Westmoreland County, offering both seasonal and year-round housing options. The following pages provide a more detailed understanding of the characteristics of the town's housing stock, type, age, quality, and location, as well as occupancy trends, growth, house values, and affordability.

Current housing stock

The various styles and types of residential housing includes detached single-family dwellings, townhouses, apartments, and condominiums. Lot sizes ranges from 2,500 square feet to 40,000+ square feet. However, the vast majority of the existing lots are in the 5,000 to 15,000 square feet ranges.

According to the 2017 Census Bureau detached single-family dwelling make up 82% of the 2331 residential units, a slight decrease from the 2014 Census. Mobile home units continue their decline from 2014 to 1.1 percent of the occupied housing units according to the Census Bureau. The remaining mobile homes that exist in the town's Central Planning Area are grandfathered and no new units are allowed under a zoning ordinance amendment.

A variety of housing options, beyond owner-occupied detached single-family dwellings, are needed to serve the diverse needs of the community. Younger individuals who are new to the workforce (ages 18-24) with incomes at or below 30 percent of the area median income and older residents ages 65+ who are looking for housing with significantly less maintenance all need options outside of the detached single-family home. These age categories comprise 44 percent of the town's population of 3,541 as shown in Table 2 below. This suggests that 1,615 individuals need alternatives to the single family.

According to the Census approximately 419 of the towns 2,331 housing units, or 17 percent, offer options other than single-family dwellings. Assuming the average of 2.2 per household from the 2017 American Community Survey (ACS) estimates, the existing housing stock can provide 772 individuals alternatives to detached single-family dwelling, leaving and additional 843 individuals or 23 percent of the population potentially without housing alternatives. This points to the current need for an additional 383 housing units that are not detached single-family dwellings to serve these individuals, or almost triple the 132 units currently available.

Table 17: Types of Residential Units (2017)

Type	**Number 2014 ACS**	**Number 2017 ACS**	**Percent**
Total housing units	2,305	2,331	
1-unit, detached	1,973	1.912	82.00%
1-unit, attached	132	142	6.10%
2 units	61	17	0.70%
3 or 4 units	44	56	2.40%
5 to 9 units	30	116	5.00%
10 to 19 units	16	21	0.90%
20 or more units	22	50	2.10%
Mobile home	27	17	0.70%

US Census ACS Physical Housing Characteristics For Occupied Housing Units 2017 5-Year Estimates. Retrieved from internet December 2020 https://data.census.gov/cedsci

Table 18: Colonial Beach Population Potentially Needing Alternatives to Detached Single-Family Dwellings

Type of Resident	Percentage of Population	Individuals
New to the workforce (18-24)	5%	169
Aged 65 and older	29%	1,023
At or below poverty level	10%	1,554
Total	44%	1,554

US Census Bureau, Poverty Status in the Past 12 Months ACS 2017 five-year estimates. Retrieved from the Internet December 2020. https://data.census.gov/cedsci/

Subsidized and assisted-living complexes

Table 19 shows the subsidized units in Colonial Beach with 148 units and make up 9 percent of the town's occupied housing units. Riverwood Apartments has 83 units and the Colonial Beach Village Apartments has 32 units. The Meadows is located on the 400 block of Meadows Avenue and has 33 units for individuals 65 years or older.

Table 19: Colonial Beach Subsidized and Assisted Living Complexes

Complex name	**Number of units**	**Individuals served at 2.2 per household**
Colonial Beach Village Apartments (Section 8)	32	70
Riverwood FmHA	83	182
The Meadows FmHA (515 program for +65 years)	33	72
Totals	148	253

As referenced in Table 19, all three of Colonial Beach's subsidized complexes are at full capacity and there are individuals who are on the waiting list. However, this gap is a manageable number and indicates that Colonial Beach is on track to reach that goal. In fact, nearly 10 percent of the occupied housing stock in Colonial Beach is subsidized. In addition, the town provides 84 percent of Westmoreland County's entire stock of subsidized housing units. Colonial Beach has kept pace with the demand for subsidized housing and now needs to turn future housing resources to accommodate the workforce.

New housing starts

Detached single-family dwelling continue to be the most popular choice for new units. This is partially due to the existing zoning code, which defines detached single-family dwellings as a by-right use in the residential districts. Compact or attached housing styles may require additional action by the Town Council, Planning Commission, and/or the Board of Zoning Appeals. However, over the past 15 years, several attached housing options have been approved and built in the town:

Potomac Renaissance is a five-story mixed use condo development located in the Resort Commercial zoning district. Virginia Marine Investments LLC completed construction on the second of two building in late 2015, adding 24 two- and three-bedroom units for a total of 52 units.

Monroe Point, located on Monroe Bay in the Monroe Point Planning Area, is a waterfront community offering attached single-family townhomes. A total of 190 units were approved, with 73 units constructed in 2016 and an additional 117 units yet to be completed.

Potomac Crossing, approved in early 2000 as a Planned Urban Development (PUD) but not constructed, has the potential for detached units and attached units; re-zoning would allow for up to 900 housing units. Though these units currently require a conditional use permit, the town could explore a mixed/use mixed/income development and working with the area property owners who might consider it. See Table 4 for more information related to new housing starts.

If developed Potomac Crossing would add apartments and townhouses to the Colonial Beach housing market. This number could substantially meet the current need of an additional 383 non-single-family dwelling housing units but may take many years to realize buildout. Additionally, many of these developments do not specifically address the needs of low-to moderate-income and older individuals.

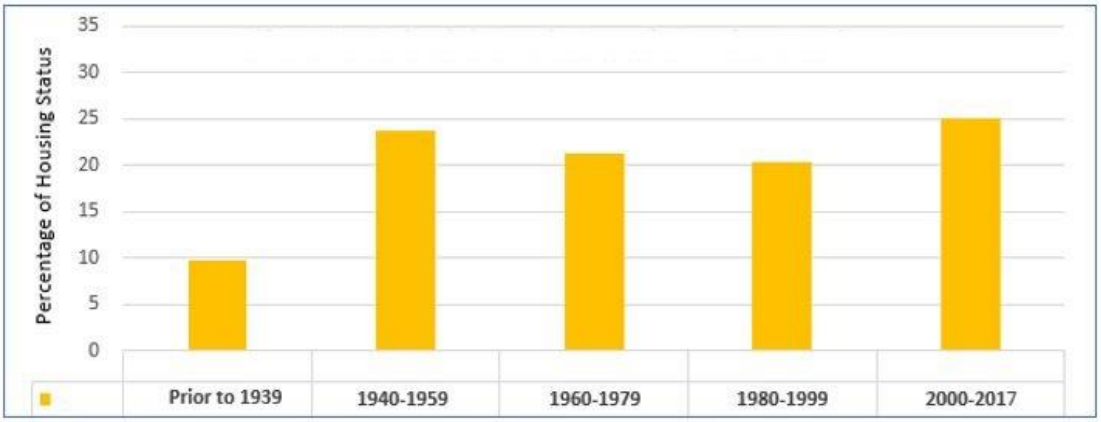
Indicators of housing stock quality

Below is a brief discussion of the indicators reviewed: age, plumbing, kitchen, and inspections. Based on review of several indicators, the quality of the overwhelming majority of Colonial Beach's housing stock is good.

Age

One third of Colonial Beach's housing stock was built prior to 1959 according to the 2017 ACS and 66% built after 1960. Homes built after 2000 comprise 25% of the home in Colonial Beach. See chart below.

Chart 3: Colonial Beach Age of Housing Stock



US Census Bureau, Poverty Status in the Past 12 Months ACS 2017 five-year estimates. Retrieved from the Internet December 2020. https://data.census.gov/cedsci

Plumbing, kitchen, and telephone services characterizes

A measure of the health of the housing stock is the presence or lack of complete facilities, such as plumbing, kitchens, and telephone service. The town, as evidenced in Table 5, fares well in the plumbing and kitchen categories when compared to Westmoreland County and the Commonwealth of Virginia. Telephone service, a standard way to evaluate housing characteristics, can be misleading indicator of the health of the housing stock because many households now rely on cell phones.

Table 20: Comparative Plumbing, Kitchen, and Telephone Service Characteristics

Location	Lacking complete plumbing	Lacking complete kitchen	Lacking telephone service
Colonial Beach	0.00%	0.00%	14.00%
Westmoreland County	0.40%	0.40%	2.20%
Virginia	0.30%	0.60%	2.00%

US Census Bureau, ACS 2017 five-year estimates. Selected Housing Characteristics Retrieved from the Internet Dec 2020. https://data.census.gov

Housing retention and blight prevention

Private upkeep of the town's more soundly built homes has helped maintain the overall quality of the community's housing stock. Public initiative in the form of block grant projects and Housing Authority programs have also contributed measurably to improving living conditions for the area residents. The 2017 renovation of Riverwood Apartments, a subsidized multifamily housing complex, contributed to the ongoing improvements in the housing stock. Additionally, the Colonial Beach Redevelopment and

Housing Commission, established a Minor Home Repair Program that has improved housing conditions for eligible town residents.

Housing construction standards in the town must comply with the Virginia Uniform Statewide Building Code, which established minimum standards for both new construction and renovation to existing structures. The town's designated building officials and code enforcement officials or other recognized authorities are responsible for inspecting new, renovated, and existing housing units to ensure they meet code requirements. The Northern Neck Planning District Commission (NNPDC) conducted a 2013 survey of existing housing and identified 57 units that are considered blighted. Twelve of those units were mobile homes that fail to meet safety standards and are sub-standard and will be eliminated once they are no longer occupied according to a town ordinance.

The bulk of these substandard units, 29 in fact, can be found in the town's Central Area. Many of these units are visible from the Colonial Avenue as you enter the town and contributes to the perception of a blighted community. This planning area is also challenged with stormwater drainage and flooding.

Location of housing, neighborhood character, and available lots

Housing can be found throughout the town in each of the seven (7) planning areas from North to South: Bluff Point, Potomac Crossing, Riverside Meadows, Classic Shores, Central Area, Monroe Point, and The Point. Summaries of the relative housing and neighborhood characteristics of each planning area are below. The number of available residential lots in each planning area as of 2017 is shown in Table 6.

Additional information related to the location and characteristics of each planning area is as follows.

Bluff Point and Riverside Meadows

The Bluff Point and Riverside Meadows have primarily single-family dwelling on large lots. The density ranges from 2.8 to 3.6 units per acre. These two planning areas represents typical suburban-style single-family dwellings. Approximately 75 vacant lots are available for in-fill development in keeping with the character of the neighborhood.

Central Area

With its wide range of land uses, the Central Area is the most diverse planning area. Colonial Avenue, the town's primary commercial corridor, roughly bisects the Central Area beginning at McKinney Boulevard and ending in the Resort Commercial zoning district along the Potomac River. Smaller homes and cottages on compact lots comprise most of the residential development, and density ranges from 2.8 to 6.8 units per acre. Approximately 125 vacant lots are available for infill development. Older, small condominium and multi-family developments are scattered throughout the planning area. The Colonial Beach Commercial Historic District could offer the opportunity for mixed-use/mixed-income housing units as part of the area's historic revitalization. In addition, The Dodson Development group has plans to develop two historic buildings and convert them into a mixed use office and residential uses (see p. 51).

Classics Shores

The Classic Shores Planning Area contains a variety of dwelling units on smaller lots. Density ranges from 5.6 to 7.6 units per acre. Approximately 825 lots exist; however, more than half are too small for development. Currently platted lots (typically 25 feet in width) require the consolidation of multiple lots prior to building to meet the minimum buildable lot size of 5,000 square feet and these small lots are typically not contiguous. The exception is the 9th street through 6th street, these lots are contiguous and

builders could combine undersized lots to build multifamily units. However, to enhance the potential for 9th street sewer and water lines need to be installed. Excluding 9th street, the number of potential infill housing units would be closer to 400 for the Classic Shores.

Monroe Point

The Monroe Point Planning Area contains the Beachgate Shopping Center and the Monroe Point mixed-use development that includes high-density townhomes and planned commercial development along Rt. 205. The commercial development has been approved but not started, however, 73 of the planning 190 units have been completed. This leaves 117 townhomes that are planned.

Potomac Crossing

The Potomac Crossing Planning Area was approved for a large-scale golf course community Planned Unit Development (PUD) in the early 2000s. The economic downturn in the late 2000s derailed its development and the site currently sits vacant. Since then, the profitability of golf course communities has declined. The PUD was approved for a total of 900 units, but was designated to accommodate 617 units. If developed as planned, this area will provide a combination of 448 detached single-family dwellings and 169 townhomes. Additionally, 283 as yet undetermined types of dwelling structure could be developed over 500+ acres of the former Wilkerson Farm. Density at 900 units would yield 1.8 units per acre. If the town were to consider eliminating the golf course from the project, the possibility of incorporating a percentage of workforce housing could be inner woven into the development, and not concentrated or clustered in one vicinity.

The Point

The southernmost section of town, the Point Planning Area, is situated on a peninsula bordered by the Potomac River to the east and Monroe Bay/Creek to the west. The Point contains some of the oldest homes in the town, and the lots are relatively small (5,000 to 8,000 square feet). Density is approximately 5.5 units per acre.

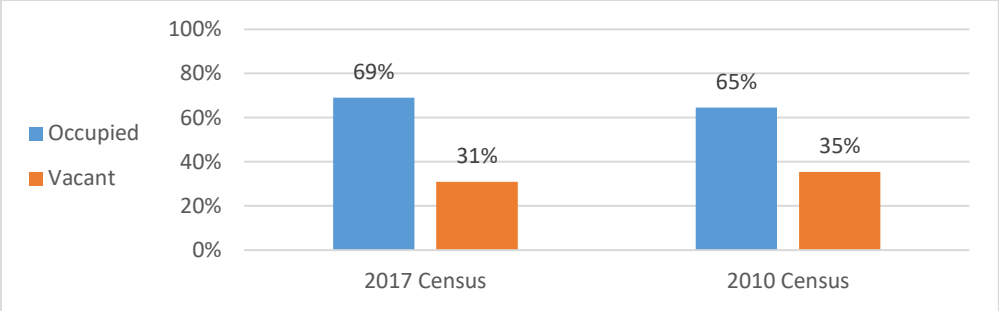
Table 21: Available Residential Building Lots by Planning Area as of 2017

Location	**Available residential lots**	**Notes/comments**
Bluff Point & Riverside Meadows	75	Infill development
Central Area	125	Infill development
Classic Shores	400	Infill Development (825 vacant lots available but more half are less than the required 5,000 square feet required)
Monroe Point	117	Continuation of planned townhome development
Potomac Crossing	617	As yet undeveloped 448 Single- Family Detached and 169 townhomes with potential for an additional 114 units
The Point	8	Infill development
Total	1,342	

Housing occupancy

The percentage of occupied and vacant housing units in 2017 was 69.1 percent and 30.9 percent, respectively, as depicted in Chart 4 below.

Chart 4: Percentage of Occupancy and Vacancy Rates



US Census Bureau. Vacancy Status Universe: Vacant housing units 2013-2017 & 2006-2010. American Community Survey 5-Year Estimates. Retrieved from Internet June 2020. https://data.census.gov/cedsci

The ACS 2017 census data revealed an increase in seasonal/recreational use. The high vacancy percentage are the result of homes that are for seasonal or recreational use. These uses make up 66 percent of Colonial Beach's vacancy percentage (See Table 6 below). According to the 2017 Censes 554 units are seasonal and recreational housing units, down from 579 in the 2010 census, a decreased of 5 percent. A more accurate vacancy rate, units that are vacant and not currently on the market to be sold or rented, decreased from 9.4 percent to 8 percent respectively from 2010 to 2017. According to a report prepared by the Economic Vitality Committee Downtown Colonial Beach, Inc., the 2016 the true vacancy rate is 1.6, indicating a shortage.

The 2010 Census shows a peak in the number of units for seasonal or recreational purposes with a slight decrease in 2017 but remains an important factor in Colonial Beach's housing market. The town continues to attract second home buyers, which brings revenue to the local economy. The total number of rental units also went down and corresponds to an increase in owner occupancy. (See Table 7 below). As highlighted, 44 percent of the existing Colonial Beach population falls into a demographic that desire alternatives to the detached single-family home (low-income individuals, ages 18-24, and ages 65+).

Less than 17 percent of the housing stock offers alternatives to single family homes. As the town population ages, it is anticipated that the demand for smaller one and two bed-room units will increase significantly within the next decade.

Table 22 Changes in Occupancy of Housing Units

Housing type	2010 Census Number	2017 Census Number	Percentage +/-
Total housing units	2,326	2,331	0%
Occupied housing units	1,588	1,611	+1%
Owner-Occupied	1,042	1,083	+4%
Renter-Occupied	546	528	-3%
Vacant housing units	794	720	-9%
Seasonal use	554	532	-8%
For rent	81	15	-81%
For sale	55	101	-84%
Rented/sold, not occupied	4	28	+600%
All other vacant	75	51	-32%

US Census Bureau vacant housing units 2013-2017 & 2006- 2010. American Community Survey 5-Year Estimates. Retrieved from Internet December 2020. https://data.census.gov/cedsci/table?q=occupancy&t=Ho

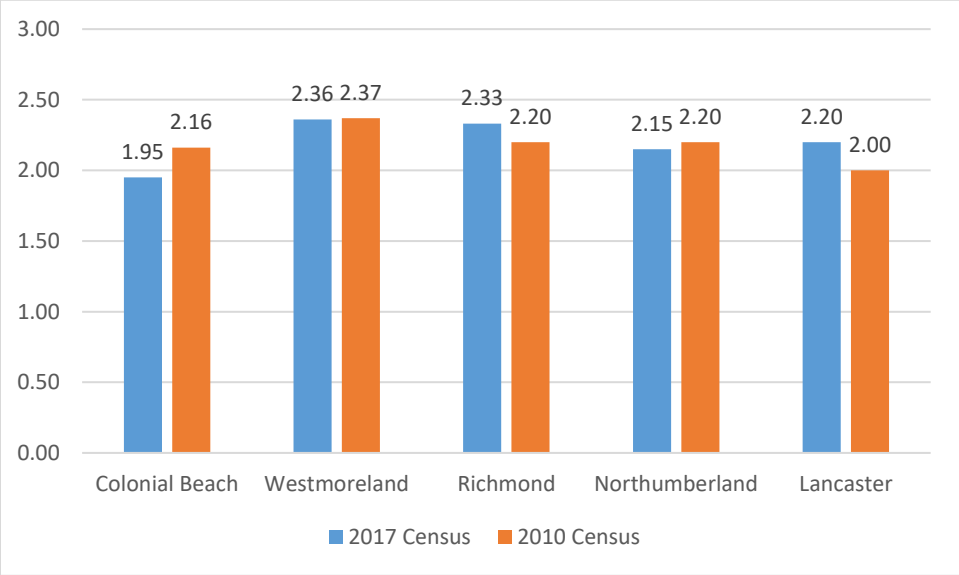
The relative consistency of these numbers and the increase in owner-occupied units represents a stable community, economy, and housing market. As the town grows, and its economy continues to diversify, this trend should remain consistent well into the next decade.

Owner-occupied average household size

The average household size of owner-occupied dwellings in Colonial Beach decreased from 2.16 in 2010 to 1.9 in 2017 according to Census data. This decline in household size is not a new phenomenon.

Household sizes have been declining both nationally and statewide since at least 1850 when the average number of people per household was 5.5. This trend holds true throughout the Northern Neck where the average household size for owner-occupied units went down in all counties. (See Chart 5).

Chart 5: Owner Occupied Average Size Household

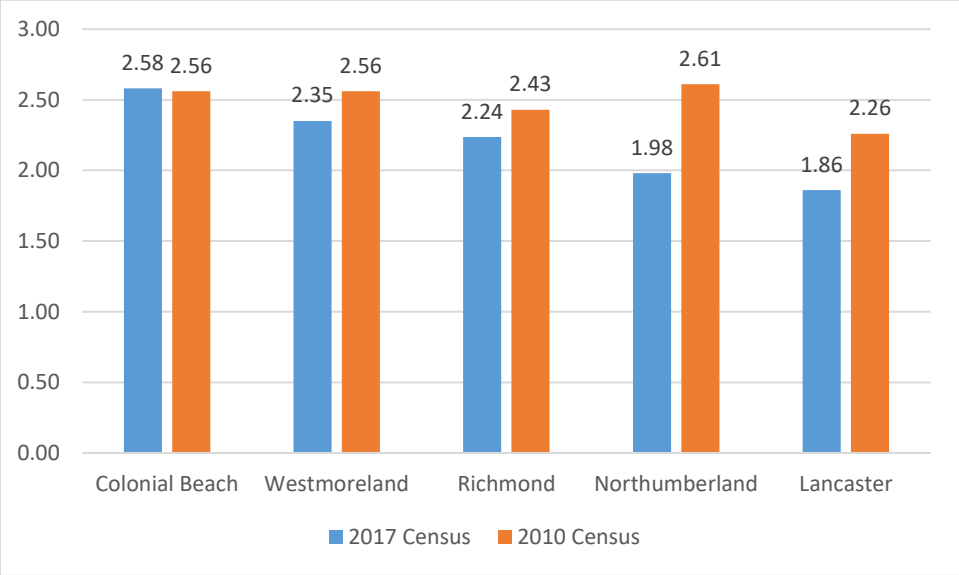


US Census Bureau vacant housing units 2013-2017 & 2006-2010. American Community Survey 5-Year Estimates.

Renter-occupied average household size

While the average size of owner-occupied households decreased, the average size of renter-occupied households increased. The Town of Colonial Beach along with Richmond, saw increases in household size for renters, while Westmoreland, Northumberland, and Lancaster saw decreases. The decreases in renter household size for Westmoreland, Northumberland, and Lancaster also correspond to population decreases. Both Richmond and Colonial Beach saw modest increases in population and also had an increase in the renter occupied average size of households.

Chart 6: Renter Occupied Average Size Household

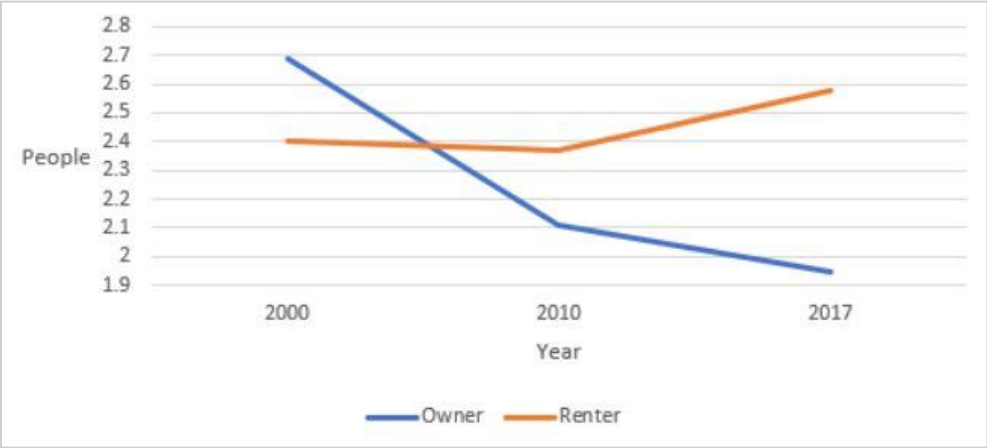


US Census Bureau. Vacancy Status Universe: Vacant housing units 2013-2017 & 2006-2010. American Community Survey 5-Year Estimates. https://data.census.gov/cedsci

Projected average household size

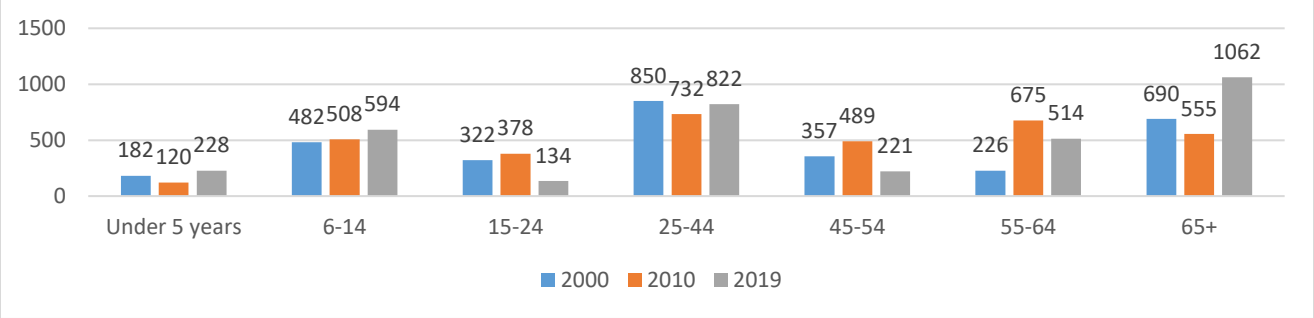
The average household size for renter-occupied homes in Colonial Beach increased by a factor of 0.02 between 2010 and 2017. Carrying this forward for the next 10 years, the average household size for renter-occupied homes could increase to 2.66. On the other hand, the owner-occupied average household size decreased by a factor of 0.2. If this decline continues a further decrease in the average household size of owner-occupied units would be 1.85 by 2030. These trends are shown in Chart 4. The continuous decline in owner-occupied household size, both locally and nationally, may lead to the need for smaller, more compact homes. This is especially true for Colonial Beach, which has a high percentage of older individuals (see Chart 8).

Chart 7: Colonial Beach Average Household Size – Renters vs. Owners



US Census Bureau factfinder retrieved November 2019, Occupancy characteristics American Community Survey, Retrieved from the Internet Dec 2020 https://data.census.gov/cedsci

Chart 8: Colonial Beach's Total Population by Age

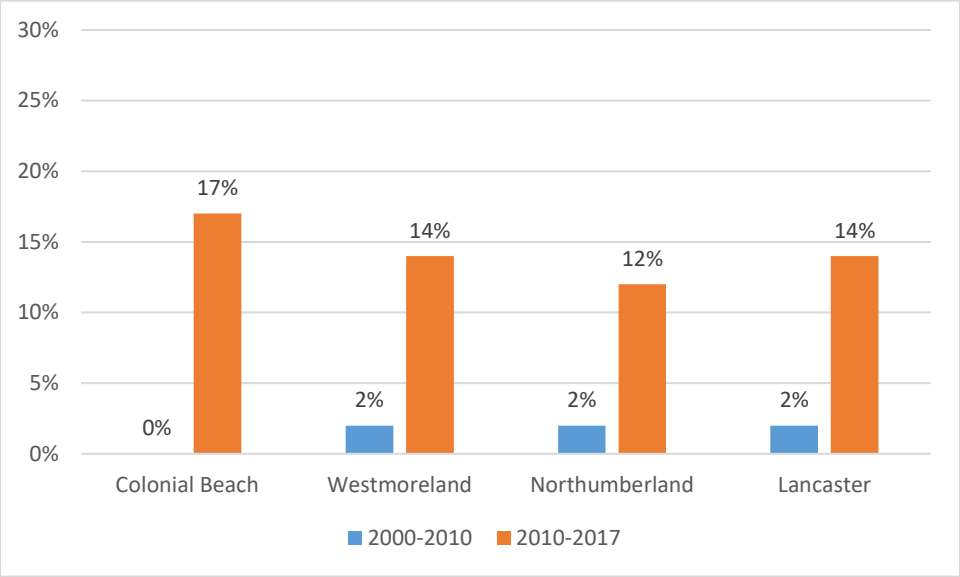


US Census Bureau. Vacancy Status Universe: Vacant housing units 2013-2017 & 2006-2010. American Community Survey 5-Year Estimates. Retrieved from Internet June 2020. https://data.census.gov/cedsci

Housing growth

Growth in the housing stock in Colonial Beach has not increased like it did prior to the 2008 economic crisis. Chart 6 indicates that the post 2008 economic recovery has been slow. However, the total number of housing units in the town in 2010 was 2,326, and by 2017 it had held at 2331, a slight increase. A 2019 review of the number of building permits issued from the Planning and Zoning Department indicates between 2012 and 2015, the town issued 89 permits for new housing units (63 detached single- family dwelling (SFD) and 24 condos). This represents an approximate average of 22 SFD and attached building permits per year for new housing. The projected growth based on this average would yield 330 new units or a 14% increase between 2015 and 2030. If the town maintains its current growth rate, the town's water supply will be adequate for the next 15 years.

Chart 9: Growth Rates in Housing Units



US Census Bureau, factfinder.census.gov, 2000 Profile of General Demographic Characteristics retrieved November 2019. The US Bureau, ACS 2010-2017 Selected Housing Characteristics for all areas. https://data.census.gov

The current number of zoned lots available for infill development far exceeds the anticipated number of housing starts projected to 2030 (See Table 6). Additional residential lots also exist in approved, but not yet constructed, developments such as Monroe Point and Potomac Crossing. This supply of by-right lots suggest that the town has an ample supply of primarily single building lots for single family detached units, with some multifamily units, however, the bulk of these units are single family and not are multifamily units. The need for contiguous lots for multifamily construction make the undeveloped section of Classic Shore along 9th street, Monroe Point, and Potomac Crossing the logical locations for multifamily development. Many of the lots along 9th street are individually owned, making it a financial challenge for builders to combine them and cover infrastructure costs.

Housing values and affordability

The availability of workforce housing is an important determinant of the quality of life and vitality of the community. In recent years, one of the most widespread problems across the country has been the lack of workforce housing. Of late this phenomenon is known as the 'missing middle". The missing middle consists of attached multi-unit housing types such as duplexes, fourplexes, bungalow courts, and mansion apartments that are smaller than a house and are integrated throughout the community at a lower cost than a single-family home.

Colonial Beach faces a lack of housing that would be affordable to the workforce. To effectively meet the needs of the modest income earners a portion of the new and existing residential units should be compatible with the income of the town's workforce to ensure that those who wish to work and live- in town are able to find adequate housing. As rent and housing prices rise, availability of affordable housing decreases for low-and- moderate income earners. Without workforce housing, individuals and families with modest incomes often must rent or reside in aging, deteriorated substandard housing that has

remained affordable largely due to its condition. The following pages present findings related to the availability of Colonial Beach's housing market as a whole and the gap in workforce housing.

Home values

Home values have been rising in Colonial Beach and most areas of Westmoreland County over the last several decades. However, housing values peaked in 2006 and began to decline in 2007 as a result of housing inflation that led to the housing 2008 financial crisis. Based on Census Bureau data the median house value in Colonial Beach was $232,600 in 2010 and $241,500 in 2017. Chart 6 show the town's median house/condo values between 2000 and 2017. It also shows changes in median household income. Colonial Beach saw a 165 percent increase from 2000 to 2010 and a 175 percent increase in home values from 2000 to 2017, irrespective of the decline in housing values that began in 2007. The prevalence of waterfront homes, as well as many homes being used seasonally/recreationally by those with disposable income, has inevitably raised the median home value of the town resulting in a disparity between housing costs and lagging wage increases. Table 8 shows housing costs have risen 176 percent since 2000 whereas wages have only risen 70 percent.

According to the 2017 ACS, 19 percent of the stock, or 206 units, in Colonial Beach are valued under $150,000. Of those 206 units valued under $150,000 less than half (92 housing units) are valued under $100,000. Many of these units contribute to the blight identified by the Economic Vitality Committee Downtown= Colonial Beach, Inc., report on economic development in Colonial Beach.

Income levels

Between 1990 and 2017 median household salaries have risen, but not at the same pace as home prices. (See Chart I, and Table 9). As stated, household income in Colonial Beach increased 70% from 2000 to 2017, compared to a 176% increase for housing costs during the same period. This gap keeps many potential buyers out of the market and reliant on low cost rental units many of which are substandard as described in NNPDC's 2013 report on blight.

Table 23: Changes in Home Values and Median Household Income

	1990	**2000**	**% change**	**2010**	**2017**	**% change**
Median home value	$69,000	$87,600	27%	$87,600	$241,500	176%
Median household income	$23,614	$31,711	34%	$31,711	$53,789	70%

US Census Bureau, Factfinder November 2019. https://factfinder.census.gov

Historically, the typical median home price/income ratio in the United States was 2.6 times as much as the median annual income, with a maximum of 2.8, as shown in Table 8 below. This ratio nearly lined up in the 1990 and 2000. However, the current ratio of 4.49 leaves a gap in affordability of nearly $100,000. Households earning median incomes cannot afford to buy a home in Colonial Beach and are likewise challenged with a high rent burden as examined in Table 24 below.

Table 24: 2017 Household Income/House Price Ratio

Year	Median household income	Median house value	Ratio	Maximum affordability x2.8 annual income	Gap
1990	$23,614	$69,000	2.92	$66,119	$2,881
2000	$31,711	$87,600	2.76	$88,791	$0
2014	$47,273	$224,000	4.47	$132,364.40	$91,635.60
2017	$53,789	$241,500	4.49	$150,609.20	$96,820.20

US Census Bureau, Factfinder November 2019 https://factfinder.census.gov

Local commercial endeavors including the tourism and restaurant sector rely on a workforce that will staff their establishments. A stable community offering a good quality of life for all residents must include accessible housing for income earners at the median income level. Based on the town's median household income of $53,789 and using an affordable housing price ratio of 2.8 the maximum home value for households would be $150,609. The Urban Land Institute defined workforce housing as "housing that is affordable to households earning between 60 percent and 120 percent of the area median income". For Colonial Beach this equates to an annual income of $32,273 to $64,546 that many teachers, law enforcement agents, and municipal employees earn. Housing prices ranging between $90,364 and $180,728 would be affordable to the workforce. Approximately 26% of the town's owner-occupied homes are valued at $175,000 or less according to the 2017 ACS Census. This data corresponds to the information obtained in a report from the Economic Vitality Committee sponsored by Downtown Colonial Beach, Inc., on economic development in Colonial Beach. The availability of safe decent housing that is affordable to all citizens within a community is essential for economic growth and stability.

Rental costs

Individuals who are unable to afford to buy a house turn to the rental market. According to the 2017 ACS the median monthly cost for housing for rentals in Colonial Beach increased 66 percent between 2000 and 2017 from $538 to $893. Using 2080 as the average number of work hours in a year, the annual salary needed to qualify for a rental at $893, at no more than 30 percent of income, the accepted standard of affordability, a household would need to earn an hourly rate of $17.27, or $35,920 annually.

Cost burdened households

Income has not kept pace with the cost of housing. The long-accepted standard of affordability that the cost of housing should not be greater than 30 percent of the household income has been established to provide stability to the rental market and mortgage lending strategies. The following charts highlight the percentage of cost-burdened households by income in Colonial Beach. In 2000 the percentage of renters paying 30 percent or more was 34 percent that number increased to 68 percent in 2017. That represents a 100 percent increase in the number of rental households experiencing a housing cost burden in Colonial Beach since 2000 with nearly two thirds of Colonial Beach renters struggling with high rent. More than 25 percent of homeowners also have a high-cost housing burden. This lack of housing affordable to the local workforce could impact the future economic stability of the town. Local restaurants struggling to stay open year- round to off-set operational costs are having trouble finding and keeping staff due to a shortage of available employees. This negatively impacts the tourist industry so vital to the local

economy. In order to build a solid tax base to fund capital improvements and to encourage growth, a community must offer a diversity of housing resources to accommodate the workforce.

Conclusion

Ten percent of the occupied housing stock in Colonial Beach has some form of rent subsidy to address the need of very low-income households. However, this does not address the need for workforce housing.

The data show housing that is affordable to those earning 60 percent to 120 percent of the annual median income ($32,273 to $64,546) have the greatest cost burden. One in four homeowners are paying more than 30% of their income toward housing cost, and two out three renters are paying more than 30 percent of their income toward rent. These owners/renters are being squeezed out the market and are forced to live elsewhere or live in substandard housing. This flight out of Colonial Beach negatively impacts local businesses both economically, and their ability to find suitable employees.

Future possibilities for in-fill and development offer countless opportunities for expansion with potentially more than 1300 lots available for building. This increase in housing units will positively affect the local economy. Building smaller modest priced housing also boosts the local economy and provides opportunities to expand the consumer base which will attract new businesses. This will provide greater economic stability to the community.

Wage increases in 2017 have risen 70 percent since 2000 but this increase is not keeping pace with the cost of buying a home in Colonial Beach which has increased 176 percent. The cost of rental housing has also increased by 66 percent. The 2017 median home value in Colonial Beach is $241,500 which leaves a $96,800 gap in housing costs for those buyers earning the AMI at $53,789. This is the segment of the population who is paying 30 percent or more of their income for housing and have the greatest need for housing that is within their income level. These increased costs make smaller attached units a more desirable affordable housing option.

In addition, addressing the need for adequate wastewater facilities, water supply, and stormwater management can provide confidence that the town is committed to growing the economic base of the town by supporting critical infrastructure.

Recommendations

Key recommendations:

- Per information gathered from the community, work to ensure adequate and quality housing as well as the curb appeal of dwelling.
- Increase preservation of the existing housing stock by increasing code enforcement staff to address blight.
- Conduct a follow up to NNPDC 2013 study of substandard housing for the purpose of obtaining grants from Virginia Department of Housing and Community Development and other sources.
- Support the historic district designation of downtown to assist in revitalizing the historic resort commercial area to include residential mixed use and mixed income development.
- Develop a plan to put infrastructure through 9th Street to open up opportunities for some multifamily units.

- Initiate discussions with builders to include smaller attached one-and-two-bedroom units into planned but not yet built sites and future developments including in-fill.
- Fast track approval for multifamily development.
- Allow greater density where in-fill sites have contiguous lots sufficient for building attached multifamily housing.

The Planning Commission and the Town Council should work together to analyze the statistical study within this document and develop a plan that is supported by Codes and Ordinances. Additionally, it may be beneficial for the Town to research the Federal Emergency Management Agency's (FEMA) Community Rating System (CRS). The CRS is a rating scheme in which more stringent floodplain management is incentivized through discounts on flood insurance premiums through the National Flood Insurance Program (NFIP). Localities gain points for undertaking floodplain management actions. There are ten classes, with Class 1 requiring the most points and offers the greatest discount: 50 percent. The discounts of each class increment by 5 percent. In 2016, there were 206 NFIP policies in-force, requiring $141,451 in premiums. Thus, a 5 percent discount on premiums would save these citizens more than $7,000 collectively. There are a number of "low-hanging fruit" actions that can be implemented to gain points in the CRS, including outreach activities through brochures and information on the Town website, and increasing freeboard requirements in the building codes for developments within flood zones. While several actions are feasible for the Town to implement, participation in the CRS requires meticulous upkeep of the relevant documents. This may serve as a barrier for participation for a town or county with a smaller local government body, such as Colonial Beach. However, there may be interest from the other Northern Neck localities in joining the CRS, and regional coordination may lessen the burden for each individual locality. Wetlands Watch provides numerous resources that could be beneficial to the Town in their research into participation in CRS.

Transportation

Overview

An efficient and safe transportation network is a key aspect of community development. Not only do transportation facilities serve the needs of existing residents, they also influence the location of future development and economic activity.

Colonial Beach is relatively removed from the region's major transportation network and easily by-passed by many travelers. Consequently, the area's two primary highways, Routes 205 and 205-Y (Colonial Avenue), primarily carry local traffic and tourists entering and exiting the town.

A grid system of secondary roads provides for internal street circulation. In some locations, dedicated rights-of-way and unfinished streets await improvement. As of 2003, golf carts have been approved to share the roadways with cars, excluding Route 205.

State scenic byways

There are two state scenic byways within close proximity to Colonial Beach. The potential linkage of these two segments along the Rt. 205 corridor should be explored. Its scenic qualities would be an asset to the route and provide a designated continuous scenic byway from Montross to Fredericksburg.

VDOT's role

Planning for local roadway improvements is often a complex procedure, due to the fragmented and limited funding sources. VDOT is responsible for the maintenance and improvement of streets in most incorporated towns with a population less than 3,500. However, VDOT has transferred the maintenance and improvements of the roads to the town after the town population exceeded 3,500 in 2017. Funding for roadway improvements, however, will still be provided by the state on a limited basis, depending upon prioritization of projects in VDOT Fredericksburg District. VDOT uses a six-year road planning process for both primary and secondary roads, but different procedures are used to prioritize construction improvements. Primary road projects require the input of regional highway districts, whereas secondary road improvements are prioritized at the County level. In either case, final allocation of funds is dependent on VDOT's state-wide budget on a bi-annual basis.

Nice Bridge improvement project

The Nice Bridge Improvement Project began in 2020, and will improve mobility, safety, and economic conditions for those traveling to and from Colonial Beach. This project is expected to be completed in 2023 with a 100-year service life and will replace the existing two-lane bridge with a four-lane span that includes travel lanes and shoulders. The height of the new span will accommodate tall vessels and will have all-electronic (cashless) tolling.

Bay Transit Transportation

Residents at the Beach are fortunate to have bus service to various sites around our town and towns nearby. Bay Transit provides rides for all people of all ages. The service is available for residents in Colonial Beach with rides to Fredericksburg on Thursdays, King George and Tappahannock, and more locations for $4 or less one way. Riders need to call 804-250-2011 by 3PM the day before to schedule a ride. Local rides within Colonial Beach are $1 each way.

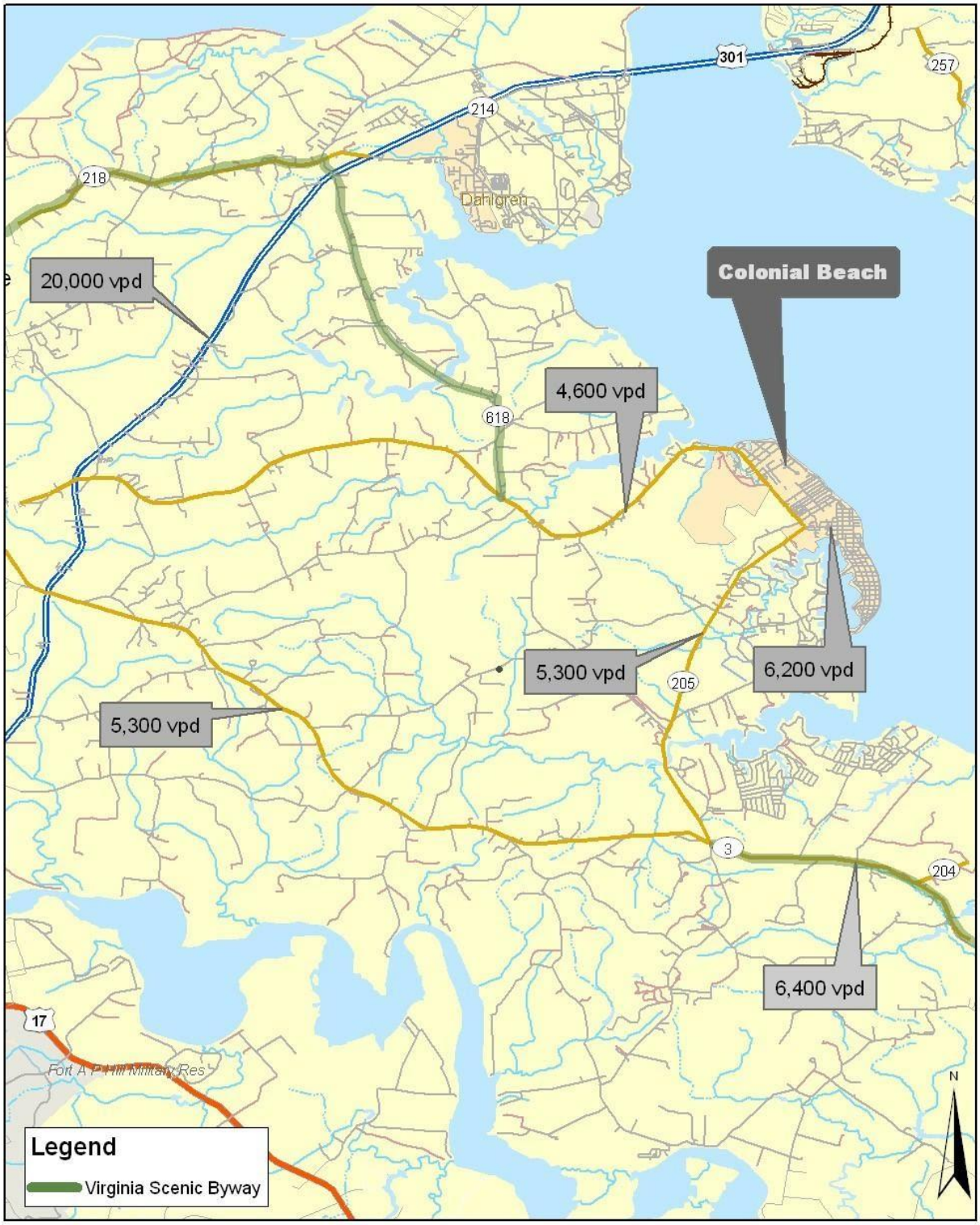
Average daily traffic on area's primary roadways

Table 25: Average daily traffic

Route	From	To	2010	2013	2016	2019
Route 205	Route 3	Col. Bch. CL*	5,612	5,520	5,777	6,306
Route 205	KG Co Line	Col. Bch. CL	4,938	4,570	5,036	5,535
Route 205Y	Route 205	Waterfront	6,639	6,612	5,791	6,640

*Actual volumes counted between Route 3 and Route 628

Surrounding road network



Transportation components

Colonial Beach's current transportation system includes the following five elements. Each of these transportation components is evaluated below in terms of existing conditions and future needs. These assessments form the basis for recommended improvements contained in the Goals and Objectives Section.

1. Primary Roadways
2. Local Streets (Secondary Roadways)
3. Pedestrian and Bicycle Facilities
4. Public Transit Services (Bay Transport)
5. Town Trolley (Bay Transport)
6. Parking – Town is presently working on this difficulty

Table 26: Roadway Classifications and Mileages

Road Classification	Roadways Under This Classification	Number of Miles
Primary Roadways	Rt. 205 & Colonial Avenue	2.85
Local Streets (Secondary Roadways)	All other improved roadways	32
Underdeveloped Roadways	Gravel roads in Riverside Meadows	2.6
Undeveloped Roadways	Paper streets in Classic Shores	1.97

Primary Roadways

The Town has 2.85 miles of primary roadways, Routes 205 and). Route 205 (McKinney Boulevard) provides the only highway access to and from the town and serves as an important commuter route to other regional highways (U.S. 301 and State Route 3). It also provides the only vehicular link between northern Colonial Beach and the rest of Town. Colonial Avenue reserves as the Town's main entranceway and provides access to downtown and to adjoining neighborhoods.

Rt. 205

Route 205 is a two-lane roadway that carries approximately 6,000 vehicle trips per day currently. As the area's population increases, traffic counts along this roadway will naturally increase.

Colonial Avenue

Colonial Avenue is a very wide two-lane roadway with sidewalks on each side that carries multiple vehicles and serves adjacent commercial and residential areas. It serves as the town's primary commercial corridor and entrance to its historic resort commercial area and boardwalk. Streetscape enhancements along the corridor are needed and would assist in revitalizing the corridor and improving the gateway into town.

Local Streets (Secondary Roadways)

The Town currently maintains approximately 32 miles of local streets (Secondary roads) within Colonial Beach. VDOT will allocate funds to the town based on the amount of "lane miles" in the existing street system. The town's public works department undertakes actual maintenance duties. All local roads must be improved to VDOT standards before they can be accepted into the state maintenance system. The Town should work closely with private developers in assuring that right-of-way width, shoulder design, and surface quality meet minimum VDOT standards.

Typical Riverside Meadows Neighborhood Street

Currently, a number of streets exists in the Classic Shores' planning area which are dedicated, but not constructed. Completion of these streets will be a necessity for future growth and development. With VDOT funds limited for new internal roadways, the Town will have to weigh the option in each case of allocating 100% local funds or awaiting private development interest and proffering arrangements. In addition to stimulating infill development, construction of these streets will also provide an additional north and south route for towns- people, thereby improving internal circulation. Several streets in Riverside Meadows have been paved in the last few years.

Typical Classic Shores Neighborhood Street

Typical Bluff Point Neighborhood Street

Traffic congestion within town is not an issue except during summer events and festivals when the town is inundated with over 12,000 visitors. Day to day problems for year-round residents relate primarily to undeveloped and unpaved streets. These deficiencies are sometimes compounded by narrow street widths, absence of turnarounds, inadequate drainage facilities, and poor road surface conditions. These issues should be addressed through on-going maintenance efforts and/or through the pursuit of community development grant funds.

Typical Neighborhood Street within The Point

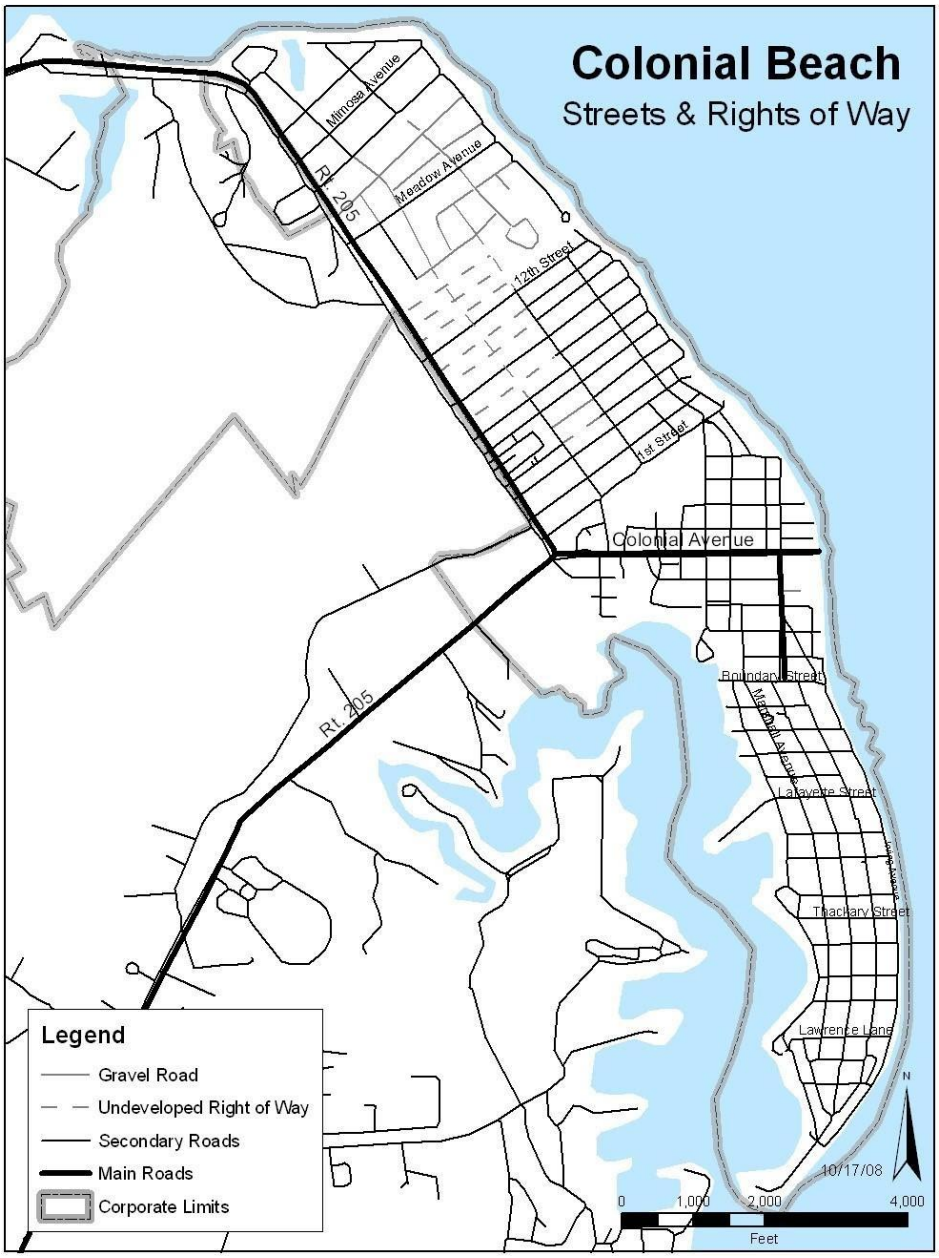
Local Streets' Development Needs

The table below identifies the unpaved and platted but not constructed that should be completed as public funds become available or in conjunction with private development.

Table 27: Unimproved Road Rights of Way

Street	From	To
4th	Euclid Avenue	Dwight Avenue
8th, 10th, 11th, 13th, 14th, & 15th	Rt. 205	Dwight Avenue
Stratford Street	Locust Avenue	Santa Maria Avenue
Dwight Avenue	12th Street	15th Street

Streets & Rights of Way Map



Pedestrian and Bicycle Facilities

Another important component of a transportation network is an adequate pedestrian and bicycle network. The town's boardwalk serves as a great foundation from which to expand safe and functional bicycle and pedestrian facilities. The map on the following page identifies the existing sidewalks and multi- use paths throughout town that are discussed in more detail below.

Pedestrian Facilities

The majority of the town's sidewalks are in the older sections of town such as the Central Area and The Point. Many of the existing walkways are narrow, deteriorating and require repair or replacement.

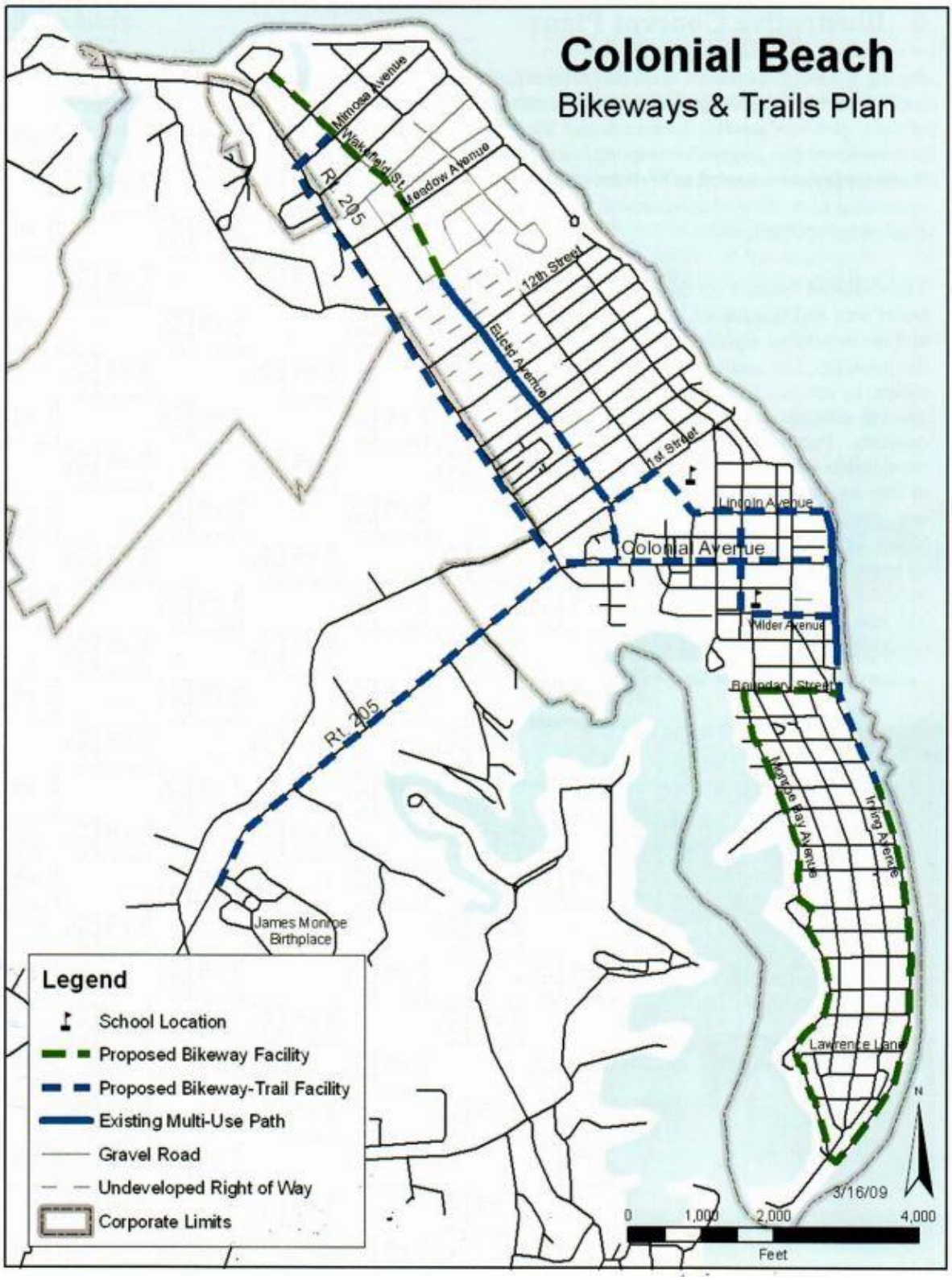
Bicycle Facilities

Many local streets provide an inviting and attractive bicycle route for both residents and visitors. Additionally, a short paved trail was installed on an unimproved section of Euclid Avenue between 12th Street and Wakefield Street, providing a missing link for bicyclists and pedestrians wishing to traverse the entire length of the town without having to use the heavily traveled Route 205. This trail is in need of improvement and should be expanded all the way to 7th Street.

Pedestrian / Bicycle Development Needs

- Promote the installation of sidewalks and multi-use paths where existing pedestrian / bicycle usage is prevalent.
- Establish a priority list of locations for bikeway and walking facilities and implement them as part of the Comprehensive Plan
- Maintain all existing pedestrian / bicycle facilities
- Ensure the accommodation of handicapped residents by installing curb and building ramps as needed
- Maintain street lighting in heavily traveled public areas
- Pursue Transportation Alternative funding from the Virginia Department of Transportation to construct a walk/bike path to the Monroe Birthplace.

Bike and Path Access Map



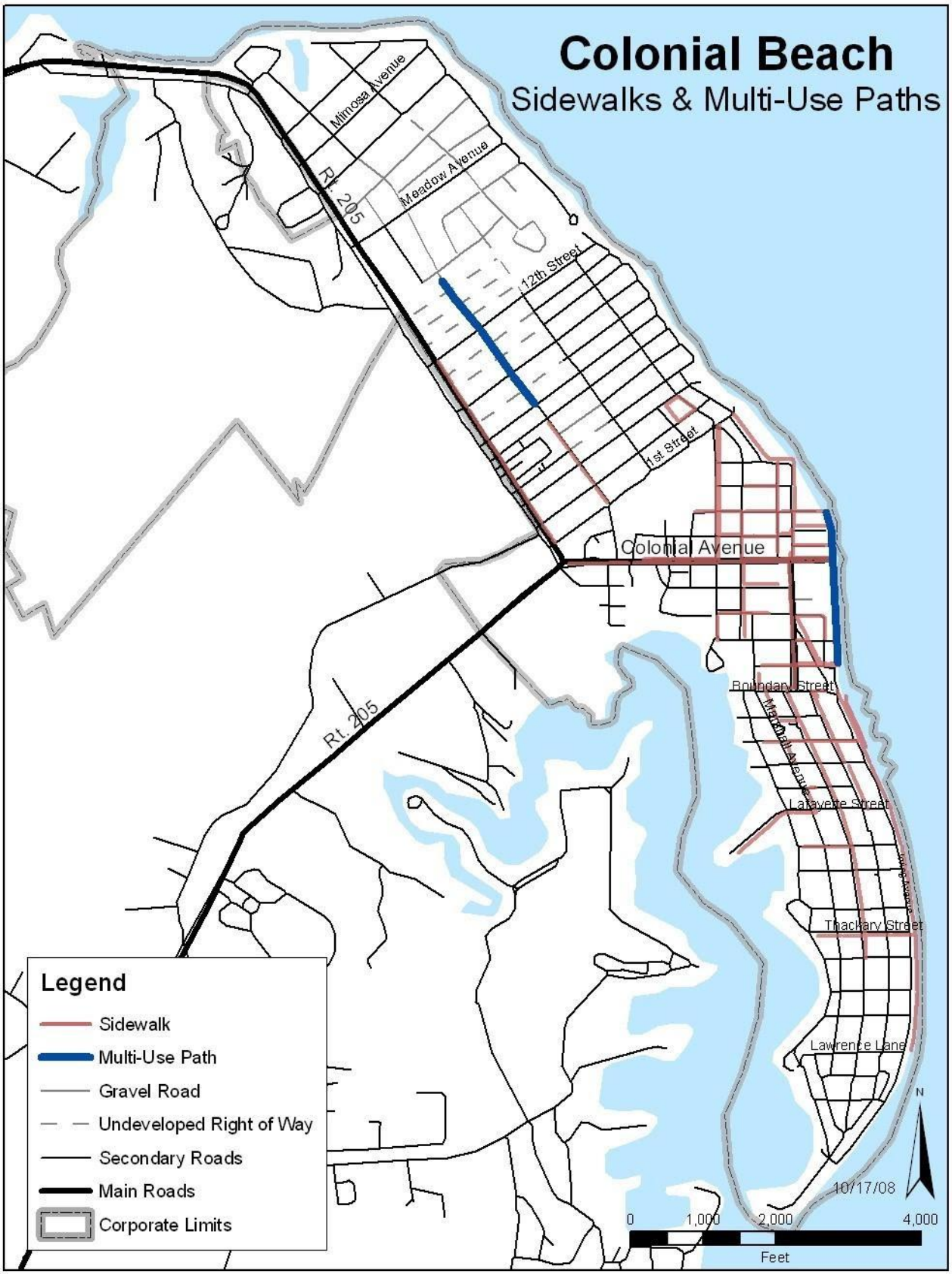
Colonial Beach Riverwalk

The Colonial Beach Riverwalk is a scenic pathway along the Potomac River. Constructed by Colonial Beach Gardeners, an organization formed during the summer of 2007, the Riverwalk is maintained by a group of local citizens. Amenities to the Riverwalk include benches, metered parking, and quick access to the beach and river.

Waterway Transit & Municipal Pier

The Municipal Pier is currently an underutilized asset that is vitally important to the Town's history and could play an important role in the Town's future should its utility be maximized. The Town of Colonial Beach began as a resort town, with large vessels regularly docking at the Pier to unload large groups of tourists. Currently, the Municipal Pier cannot accommodate such vessels. The Pier is being considered for a potential redesign, and a preliminary design has been created and submitted to VDOT as part of Transportation Alternative Funding. Approval is pending. The purpose of the project is to repair and upgrade the "T" end of the Municipal Pier to accommodate boarding and disembarking of passengers for large water vessels on the Potomac River. Due to our location and status as the last deep-water port before Alexandria, the project will allow the Town to serve as an important mid-way stop on the Potomac River once again. This would increase tourism and provide alternative transportation options.

Sidewalks & Multi-Use Paths Map



Public Transit Services

Since 1981, the Colonial Beach Transit System, managed by Bay Aging, has provided fixed-route bus service to citizens of the Town and the surrounding communities. Pick-up routes cover all neighborhoods in the Town, as well as nearby areas of Westmoreland County. In addition to internal routes, the transit service also offers scheduled trips to regional destinations, including Dahlgren, Fredericksburg, Westmoreland State Park, and Potomac Mills Mall. Shuttle buses are handicapped-accessible, with free service provided during special community events.

Funding for the Town Transit System comes from a combined state / federal grant with a small percentage of local revenue. The transit station is currently housed at the old public works facility on Colonial Avenue. The following services are offered by the transit system, however many local residents are unaware of this important community service.

Services

- Morning and evening service to Dahlgren Naval Weapon Station
- Tuesday / Thursday service to Fredericksburg
- Around town 4 days a week
- Once a month service to Potomac Mills (DC shopping area)
- Trolley service during summer weekends and holidays (free to riders – see map below)

Transit System Needs

- Increased advertisement and public awareness of the services offered

Creating an Urban Development Area

The Town of Colonial Beach is considered to be "UDA-like." By creating Urban Development Areas (UDAs), the Town will promote sufficient growth in residential and commercial areas by ensuring the efficiency of the transportation system. Moving forward, the Town will designate UDA and/or UDA-like areas in which the principles of traditional neighborhoods are incorporated into urban areas. This may include:

- Creating pedestrian-friendly streets,
- Connecting new streets with existing streets,
- Connecting streets with pedestrian walkways,
- Preserving natural areas,
- Creating mixed-use housing and neighborhoods,
- Reducing front and side building setbacks, and
- Reducing street widths and turning radii in neighborhoods.

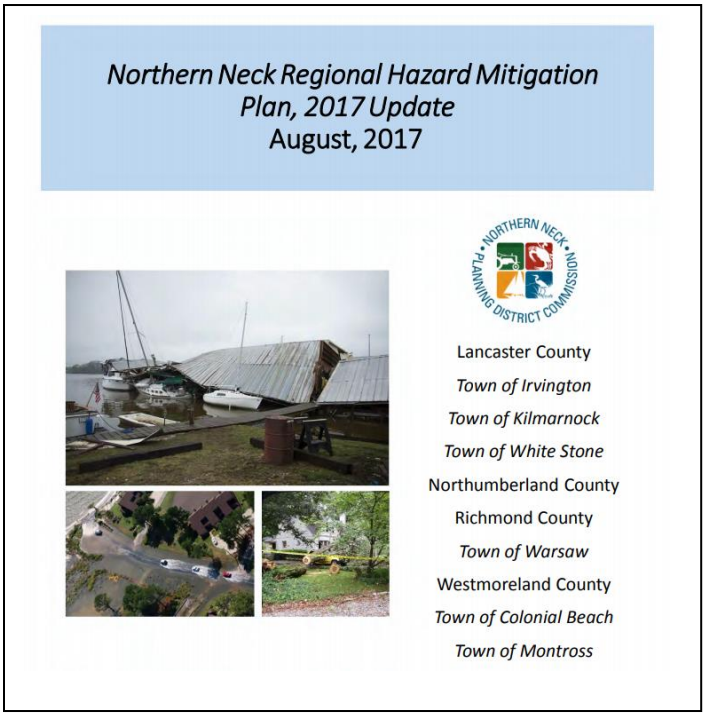
Parking

The Colonial Beach Parking Program offers on-street parking (available 12am – 11:59pm, seven days per week), five 15-minute free parking spaces along Washington Avenue, and parking lots throughout the Town. Payment can be made via the Flowbird app, or at PayStation meters located throughout the parking areas. Parking decals are available to all residents of Colonial Beach (proof of residency required), and parking is free for those in need of handicapped parking spots and for Purple Heart plate holders.

Hazard mitigation

In January 2018, the *Northern Neck Regional Hazard Mitigation Plan 2017* was updated. This document provides an overall hazard mitigation plan for the full region, including the Town of Colonial Beach and Westmoreland County. Topics covered in this plan include:

- Hazard identification and risk assessment (including inclement weather)
    - Preparing for inclement weather and natural disasters
    - A vulnerability assessment
- Mitigation strategies
    - Policies and procedures
    - Mitigation goals
    - A mitigation action plan
- Capabilities, plan implementation, and maintenance
    - A capability assessment
    - Plan implementation
    - Plan maintenance



Key information from the Plan that relates to the Town of Colonial Beach is included in the "Environment and special issues" section below. In addition, the full document may be found at https://www.readylancaster.org/wp-content/uploads/2018/04/Hazard-Mitigation-Plan-Adopted-20180329.pdf.

The Town will also use the Resilience Adaptation Feasibility Tool (RAFT) to help improve resilience to flooding and other coastal storm hazards while remaining economically and socially viable. The following categories are considered in the RAFT scorecard:

- Category 1: Policy, Leadership, and Collaboration
- Category 2: Risk Assessment and Emergency Management
- Category 3: Infrastructure Resilience
- Category 4: Planning for Resilience
- Category 5: Community Engagement, Health and Well-Being

Utilizing this tool allows for a collaborative approach to climate resilience that leverages the expertise and resources of multiple parties and stakeholders to create more resilient communities.

Environment and special issues

Environmental/Natural resources concerns

Key environmental/natural resources concerns are as follows:

- The Planning Commission should invite specialists to their meeting to review the environmental changes occurring in this geographical area.
- Shoreline erosion is a serious concern - the width of the bank has decreased dramatically especially in the Point and Monroe Bay
- Planning Commission work with Resilience Adaption Feasibility Tool (RAFT) to continually improve all services to the citizens of Colonial Beach. (Improve the local scoring for Resilience!)
- Beaches need continual oversight and trees in that vicinity should be maintained with consideration given to planting new native species where necessary.
- The entire stretch of public beach has erosion problems, which severely impact the width and capacity of the beach.
- Storm water drainage pipes empty directly onto the beach and exacerbate the erosion problems. Rainwater causes drainage ruts through the sand, washing more sand into the river.
- Concrete along banks increases runoff and causes drainage ruts to form on the beach (addressed in stormwater management plan).
- Town owned property along the Potomac River needs consistent oversight.
- Shoreline of Monroe Bay needs a consistent maintenance of town owned property.
- All creeks within the boundary of Colonial Beach should be evaluated for shoreline needs.
- The Planning Commission and the Town administration must establish a strategic plan to prioritize the problem areas and implement correct shoreline erosion control devices (riprap, bulkhead, etc.) By establishing a prioritized list and a plan of action the Town can effectively budget for the needed capital expenditures. (See Goals and Objectives)
- Collaborative action and technical assistance will help to provide coordinated erosion control measures. Town officials and private landowners should take a more active role in the Public Hearing process of the Westmoreland County Wetlands Board for all applicants within the Town limits or those on neighboring shorelines.
- Zoning controls on piers, marinas, and other water-related development should be considered. The density of development along Monroe Bay and the Potomac River is critical to the aesthetic and environmental quality of the Town.

Resilience

Resilience is the ability to recover quickly from disasters and difficulties, planning now will reduce the effect of problems in the future. All local governments, particularly coastal localities, are faced with a myriad of stressors, ranging from recurrent flooding to catastrophic weather events, to economic declines, to population pressure. These stressors are interrelated, and care must be given to consider all facets of a problem, rather than isolating one cause. For the Town to grow and see economic success long into the future, resiliency must be integrated into all aspects of the Town and all new developments. The comprehensive plan outlines the vision of the prosperous future for Colonial Beach. Resiliency is the driving force behind each section in this plan, the underlying theme of the entire document. Ensuring

resiliency is an ongoing process. It begins by assessing the current state of the Town, both the risks the locality faces, as well as how resilience is already incorporated into the Town's documents and planning processes. Then, once areas of improvement are identified, the Town must prioritize the actions they may take to increase resilience and develop plans to apply these positive changes. The next step is the implementation of these resilience action items. Some may be simple and inclusion of these improvements may take less than a year, while others may take several years to complete and involve cooperation with partners outside of the Town. However, all action items improve the Town's resilience to both chronic and acute stressors. The final step is to evaluate if the resiliency actions are adequate in improving resiliency and monitor the changing conditions to determine if alternate or additional measures must be taken. Then, adapting the plans as necessary, restarting the resiliency cycle again. Thus, ensuring the Town's resilience is a commitment, one that has already been undertaken by the Planning Commission, and must continue. A resilient Colonial Beach is the goal, so the beauty of the Town can be enjoyed by residents and tourists alike well beyond the lifetime of this document.

Coastal resource management

The Town of Colonial Beach follows the *Comprehensive Coastal Resource Management Guidance: Planning Information and Guidance for the Living Shoreline Preference* that has been prepared by the Center for Coastal Resources Management, the Virginia Institute of Marine Science, and the College of William and Mary. The full guidance document may be found at ccrm.vims.edu/ccrmp/Guidance_General.pdf. Specific plans for the Town are described below.

Waterfront land

The increase in demand for waterfront property has driven up the price and made public acquisition of these lands difficult, and in some cases even impossible. For this reason alone, it is critical that the Town of Colonial Beach maintains, improves, and preserves all the public lands, which provide waterfront access. Preserving the quality of the Potomac River, Monroe Bay and other tributaries of the Chesapeake Bay is a high priority in Colonial Beach. In addition to building future growth and development in the Town, preserving these natural lands builds resiliency to protect the Town from future threats from the natural environment, such as rising sea levels, recurrent flooding, or increased and worsened storms.

Boating activities

The increased number of boaters creates an added demand for public and private boating facilities. The increase of boating related activity has a positive impact on the local economy; however, if not handled properly it can have a negative impact on the water quality of Monroe Bay, Potomac River, and surrounding waters.

Marinas

The multiple marinas in Colonial Beach provide services needed for the boating industry. Boaters coming into the community for events or to stay at the marinas bring additional revenue to local businesses, restaurants and to the tax base. The ability to have easy access to one's boat is an extra incentive to current and future homeowners.

Recreational fishing

Recreational fishing is an extremely popular sport among many Colonial Beach visitors and residents. Although there is no specific data on the impact of leisure fishing on the local economy, judging from the boat traffic on Monroe Bay and Potomac River during the summer season and striped bass "rockfish" season, there can be no doubt as to its positive effect.

Commercial fishing

The commercial fishing industry is a minimal source to the economy and to the culture/history of Colonial Beach. The Virginia Marine Resources Commission estimates that 723 million pounds of seafood are landed in Virginia waters each year. The decline of the commercial fishing industry and the loss of the watermen in Colonial Beach would be a severe blow not only to the economy but also to the culture of Colonial Beach. Oyster Beds are being dropped from many piers to help improve the quality of the water of the Potomac.

Potomac River Fisheries Commission

The Potomac River Fisheries Commission, a bi-state authority (Maryland and Virginia) regulating fishing activities in the Potomac River, reports that striped bass permits grew immensely. As the Town's population expands so will the demand for piers, community open spaces on the water bank fishing, boat ramps, and marinas. In order to adequately address this demand, the Town must promote centralized public access points designed to accommodate many people and improve water quality. Numerous and scattered facilities will increase the potential for poor design and maintenance leading to a decline in water quality.

Public waterfront access inventory

Colonial Beach is fortunate to have many public waterfront access areas. Unfortunately, many of these public-access areas need physical improvement to enhance both their aesthetic and environmental quality. Applying adherence to the principals of the town Comprehensive Plan will improve and develop existing waterfront areas.

Beach Avenue open space

The Beach Avenue open space is a very narrow piece of land along the Potomac River stretching from 9th Street northward to 12th Street. A few park benches exist, which are in poor condition.

Waterfront access points

The Town also enjoys numerous opportunities for passive and active waterfront recreation. The number-one asset in the Town is the public beachfront/boardwalk area. The boardwalk, town pier, and beachfront are inextricably linked and together provide a multitude of recreational opportunities.

The beachfront provides an area for swimming, volleyball, sunbathing, and numerous other activities. The town pier accommodates fishermen, crabbers, and people strolling the boardwalk. The revitalized boardwalk with its shops and stores would provide a place to walk and enjoy the beautiful view of the Potomac, to eat, to shop, and relax. This entire area is a "gold-mine" of both passive and active public waterfront access and recreation.

Presently, Colonial Beach residents enjoy exceptional access to the local waterfront and major waterways. A newly renovated public boat ramp provides additional parking for vehicles with trailers. In addition, plans are being made to renovate/replace the Town Pier (see p. 86). No additional access points are needed or desirable at this time. Instead, it is expected that future demands and expansions can be reasonably accommodated at existing facilities.

Oversight of the water access needs the attention of the Town to preserve and improve the continued services offered to the Public.

Shoreline and stream bank erosion

Shoreline erosion

Three causes of shoreline erosion can be observed within the Town of Colonial Beach:

- Wave action generated by storms and boat wakes
- Inadequate outfall location and design
- Tidal effects and rain runoff on unprotected banks

Colonial Beach, flanked by the Potomac River to the east and Monroe Bay to the west, has always had to battle shoreline erosion. Shoreline erosion is a natural and continuing process principally caused and exacerbated by wave action and shoreline run-off.

Monroe Bay is better shielded from high-intensity storms. One primary factor is "fetch," or the over-water distance across which the wind blows. Since Monroe Bay is relatively narrow, the wind generates only low to medium intensity wave action against the tidal shore. However, serious erosion problems also exist along parts of Monroe Bay, due to the cumulative effects of rain runoff, tidal action, and boating activity.

Wave energy from boat wakes is another persistent problem, particularly where the navigation channel lies near the shoreline. In recent years, several marinas have located or expanded on Monroe Bay, leading to increased use of local waters by small boats.

Persistent and continual sea level rise also threatens the shores of Colonial Beach. Sea level rise causes shoreline recession and the drowning of wetlands. Large storm events interact synergistically with sea level rise to exacerbate erosion through storm surge and flooding. Projections of future climatic conditions include both the continual increase of sea level, with an acceleration of the rate of rise, and an increased intensity and frequency of precipitation. Understanding how shorelines have already changed and incorporating projections of changes is paramount to the long-term sustainability of the shorelines of Colonial Beach. The Virginia Institute of Marine Science (VIMS) conducted a study of the shores of Colonial Beach (Colonial Beach State of the Beach Report) in 2011. A similar study would assist with understanding both the realized and projected changes to the shorelines.

Erosion control measures

Pursuant to Virginia Code § 15.2-2223.2, comprehensive plans must include The Comprehensive Research Management Guidance prepared by the VIMS' Center for Coastal Resources Management (CCRM), which is available through the Comprehensive Coastal Resources Management Portal (www.ccrm.vims.edu). The portal provides a myriad of shoreline stabilization resources, with

recommendations based on the characteristics of the shoreline to be reinforced. Such resources include a manual decision tree, an interactive shoreline decision support tool, and locality-specific maps of best management practices for shoreline stabilization. As of May 1, 2020, the Commonwealth's preferred approach to shoreline stabilization is the use of living shorelines. Virginia Code § 28.2-104.1.

Unfortunately, many sections of shoreline in Colonial Beach have been the sites of ineffective and harmful erosion control measures. Dumping of broken pavement, discarded concrete, old tires, abandoned vehicles, and other inappropriate items have been used to battle shoreline erosion. These methods are not only ineffective but are unattractive and environmentally unsound.

Choosing the best design solution will depend on the characteristics, such as bank height, intensity of wave action and other shoreline features. Resources through CCRM will help guide selection of the optimal shoreline stabilization technique. Private landowners should be encouraged to obtain free technical assistance from the Shoreline Erosion Advisory Services (SEAS) as alternative types of structures are evaluated and installed. Landowners should also be informed of the benefits of multi-parcel/coordinated shoreline management. If done independently, alterations to a shoreline on one property may ultimately negatively affect shoreline erosion of another property downstream.

Encouraging and facilitating coordinated efforts will prevent these adverse effects. This may also provide cost-sharing opportunities for private landowners, incentivizing the installation of a living shoreline on their property.

Shoreline maintenance agreements

In 2019, the Town substantially amended its Pier Ordinance and incorporated new provisions for Shoreline Maintenance Agreements. The purpose of the maintenance agreements is to protect the Town's shoreline property from erosion at no expense to the Town without curtailing the rights of local citizens who currently enjoy and use the waterfront for recreational purposes. Five-year leases are issued to pier owners and applicants. If shoreline protection is necessary for the shoreline, the lessee is required by the town to install and maintain the proper shoreline protections throughout the life of the lease.

Urbanization

Aside from the natural occurring processes, urbanization of Colonial Beach has had a profound effect on watershed hydrology and water quality of the receiving bodies of water. Rooftops, driveways, roadways, and other impervious areas that are a direct result of urbanization contribute to greater volumes of runoff and less infiltration. Trace metals are common components of urban development. Roofs, buildings, pipes, paints, wood preservatives, automobiles, fertilizers, etc., all contain elements that eventually enter the aquatic system and degrade water quality. The removal of natural vegetation exacerbates the problem with pollutant runoff. Trees and other vegetation reduce the erosive effects of rain by "de-energizing" the force of the raindrop. Natural depressions allow water to temporarily pond and infiltrate into the soils, and vegetative cover acts as a natural filtration system removing pollution by either biological uptake or through attenuation.

Shoreline development and the increase of piers and other water dependent structures add to the degradation of water quality by the removal of natural vegetation and the discharge of pollutants directly into the receiving waters.

Because urbanization and development have such a profound impact on the quality of the natural water environment, it is important to counteract that impact with principles of modern design. The Town should incorporate Low-Impact Development standards into the planning process so that new developments build resiliency into their design and offset the effects of urbanization. As part of this effort, a recent audit of the town's ordinances and codes relating to trees and stormwater was conducted by Professor Firehock's graduate students from the University of Virginia as part of the RAFT initiative. The audit looked specifically at ways that the Town can reduce impervious surfaces and increase the urban canopy to lessen the impact of stormwater runoff and flooding. Communities that have what is described in the audit as "green codes" can reduce stormwater runoff by up to 7 percent and can reduce the heat island effect by 10 percent.

The Trees and Stormwater Audit Tool is a scorecard that was developed by the Green Infrastructure Center. Overall, Colonial Beach scored in the moderate range and the audit helped identify ways we can improve.

Pier densities

Piers, docks, and water dependent developments can all add to the degradation of water quality. Waterfront community development is desired due to the proximity of water-related activities. Proper planning through education, adoption of ordinances and subsequent enforcement all contribute to healthy onshore and offshore environments.

Town responsibility

Erosion is an inherent and never-ending fact of waterfront areas such as Colonial Beach. The Town must take a proactive role in planning and developing methods and a schedule to combat erosion. Utilizing tools through the Comprehensive Coastal Resources Management Portal (CCRMP) will aid in the Town's planning of best management practices for shoreline stabilization. The Town may consider developing a policy requiring the implementation of VIMS' CCRMP Best Management Practices for shoreline stabilization and an alternative mitigation strategy would require justification for approval. Use of the Best Management Practices could be incentivized by creating an expedited permitting system for those which are consistent with VIMS recommendations. The Capital Improvement Plan is a yearly method by the Planning Commission to assist the Town in addressing these issues.

Private waterfront landowners should be made aware of the free technical assistance available to them concerning shoreline erosion control devices. This assistance will allow the private landowner to choose the most appropriate erosion control device. Inappropriate erosion control measures may often exacerbate the erosion problem. The Town should also develop public outreach materials to educate citizens and waterfront landowners on the benefits of living shorelines.

In addition, the Town can invest in resources that will help to prevent erosion. VCAP (Virginia Conservation Assistance Program), part of SWCD (Virginia's Soil and Water Conservation Districts), provides credits for erosion-prevention measures such as impervious surface removal, pavers, permeable pavement, rain gardens, and other conservation projects (https://vaswcd.org/vcap-information). Through this program, localities may apply for credits in advance, use a local contractor to complete the work, and receive partial reimbursement (75 percent of actual costs or a set amount per unit).

Flooding vulnerability and impacts

Colonial Beach Flood Map

* Virginia Department of Conservation and Recreation: Virginia Flood Risk Information System cosapps.dcr.virgina.gov

Flooding has the greatest effect on the people living in the area impacted. Flooding directly impacts a community's ability to function by damaging homes and businesses, disrupting community services, and interrupting utility service. Flooded roadways can increase congestion on alternative routes and lengthen travel times for emergency vehicles and school buses. Businesses that are flooded may sustain damage to the structure and its contents, resulting in economic losses to the business.

Riverine and flash floods have the potential to pick up chemicals, sewage, and toxins from roads, factories, and farms; therefore, any property affected by a flood may be contaminated with hazardous materials and present a health and safety risk to residents. Debris from vegetation and structures may also become hazardous following the occurrence of a flood. In addition, floods may threaten water supplies and water quality, and create health issues such as mold. Damages from storm water runoff events also includes wall damage due to "wicking", mildew damage, damages to building contents, minor foundation damage, damage to water distribution systems, and potable water contamination. Public related costs include debris clearance; equipment, material and labor expenses related to emergency response; and building or facility repair or replacement (county parks, utilities, communications, buildings, vehicles, etc.).

A number of factors contribute to the relative vulnerabilities of certain areas in the floodplain. Development, or the presence of people and property in the hazardous areas, is a critical factor in determining vulnerability to flooding. Additional factors that contribute to flood vulnerability range from specific characteristics of the floodplain to characteristics of the structures located within the floodplain. The following is a brief discussion of some of these factors and how they may relate to the area.

- Flood depth: The greater the depth of flooding, the higher the potential for significant damages.
- Flood duration: The longer duration of time that floodwaters are in contact with building components, such as structural members, interior finishes, and mechanical equipment, the greater the potential for damage. Floodwaters may linger because of the low relief of the area, but the degree varies.
- Velocity: Flowing water exerts force on the structural members of a building, increasing the likelihood of significant damage. A one-foot depth of water, flowing at a velocity of five feet per second or greater, can knock an adult over and cause significant scour around structures and roadways.
- Elevation: The lowest possible point where floodwaters may enter a structure is the most significant factor contributing to its vulnerability to damage due to flooding. Data on the specific elevations of structures in the Northern Neck has not been compiled for use in this analysis.
- Construction type: Certain types of construction are more resistant to the effects of floodwaters than others. Masonry buildings, constructed of brick or concrete blocks, are typically the most resistant to flood damages simply because masonry materials can be in contact with limited depths of water without sustaining significant damage. Wood frame structures are more susceptible to flood damage because the construction materials used are easily damaged when inundated with water. The type of construction throughout the Planning District varies.

In support of FEMA's RiskMAP Program, FEMA endeavored to produce national-level flood risk analyses to estimate the potential losses from flooding across the nation. This effort occurred during 2009 and

2010 and produced a product known as the 2010 Hazus Average Annualized Loss (AAL) Study Results. The 2010 AAL Study and its associated results were intended to be a mechanism for FEMA - as well as local stakeholders - to assist in the prioritization of flood mitigation activities across the lower 48 states. Further information on the 2010 AAL Results and its use in RiskMAP Risk Assessments can be viewed in Guidance for Flood Risk Analysis and Mapping (May 2014). Notably, there were some areas in which the Hazus software was unable to produce valid results for the 2010 AAL Study in certain coastal areas. A lack of estimated flood damages limited the ability to assess potential damage across the entirety of the regional geography.

An analysis was performed in order to estimate the Total Exposure in the Floodplain (TEIF) of the building stock in the Virginia Northern Neck region. Building footprint polygons were available for Richmond and Westmoreland counties through the Virginia Geographic Information Network (VGIN) and were used for the TEIF analysis. For Lancaster and

Northumberland Counties, the TEIF method was applied at the 1,000 square foot Census Block level. The subsequent section describes the methodology and vulnerability assessment as part of this analysis.

TEIF Methodology for Building Footprints

TEIF uses the 2010 Topologically Integrated Geographic Encoding and Referencing (TIGER) Census block level data to assume the total property value for each census block within the county. The analysis divides that total census tract property value by the number of buildings in the tract, proportional to the area of each of the building footprints11. For example, if the total value of one census block is $1,000,000 and there are 10 equally sized 1,000 square foot buildings within the block, each building would be assigned a value of $100,000. If the buildings were not equal in size, they would receive more or less value proportional to the size of the other buildings within that block.

The building footprints are then intersected with the FEMA effective 100-year and 500-year floodplain data. The proportion of how much of each building lies within each floodplain is then used to calculate the value of the building's exposure to the floodplain. Due to a combination of the low resolution of the property values from the Census block data, the high resolution of the Building footprints shape file provided by VGIN. Northern Neck Regional Hazard Mitigation Plan 2017 Update Hazard Identification and Risk Assessment 4-22 buildings, and the assumption of total exposure within the floodplain, the exposed property values are extrapolated to 1000 square foot grids. This resolution best summarizes the results of the TEIF analysis at a countywide scale, identifies areas that may be more affected by a flood, and represents the uncertainty within this method of extrapolating building values from Census block property values.

TEIF Methodology for Census Blocks

When building footprints are not available, the 2010 Census TIGER block data is intersected with the effective 100-year and 500-year floodplain data directly. This method is also extrapolated to 1000 square foot grids because of some uncertainty in this approach. On a countywide scale, this method helps summarize areas with high valued property at risk of flooding.

TEIF Vulnerability Analysis and Assessment

The results of the analysis identified areas within each of the four counties that have high levels of flood exposure. The Unincorporated Areas of Lancaster County, Northumberland County, Westmoreland County, and the Town of Colonial Beach account for the most property value exposed to the floodplain accounting for 39 percent, 27 percent, 16 percent, and 12 percent, respectively, of the total damage within the Northern Neck.

For the Northern Neck Planning District Commission, the TEIF analysis showed that there is an estimated $346.8 million worth of property exposed to losses in the 100 year floodplain, and $425 million exposed to losses in the 500 year floodplain. A summary of the flood exposure for the Planning District Commission can be found in the table below. All values are rounded to three significant figures.

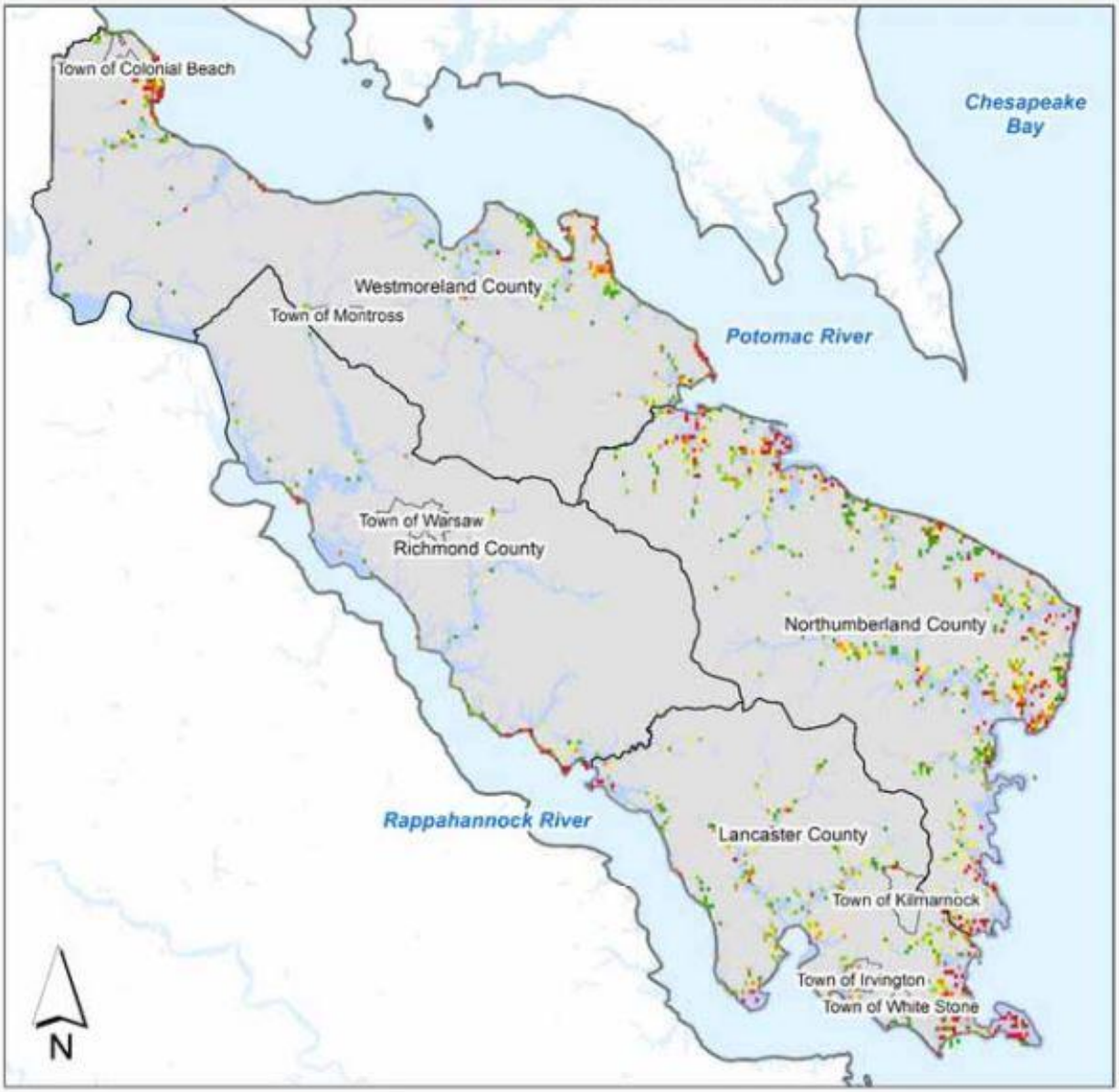
Following the table are maps displaying the 100-year and 500-year total exposure in the floodplain for the Northern Neck.

Table 28: TEIF Summary for the Northern Neck

County	Jurisdictions	100 Year Exposure	500 Year Exposure
Lancaster	County total	$131,000,000	$176,000,000
	Town of Irvington	$3,610,000	$3,720,000
	Town of Kilmarnock	$531,000	$531,000
	Town of White Stone	$0	$0
	Unincorporated areas	$127,000,000	$172,000,000
Northumberland	County total	$98,800,000	$113,000,000
Richmond	County total	$16,000,000	$21,000,000
	Town of Warsaw	$0	$0
	Unincorporated areas	$16,000,000	$21,000,000
Westmoreland	Town of Colonial Beach	$101,000,000	$115,000,000
	Town of Montross	$42,100,000	$50,400,000
	Unincorporated areas	$155,000	$155,000
	Unincorporated areas	$59,000,000	$64,600,000
Total	Northern Neck	$346,800,000	$425,000,000

NORTHERN NECK PLANNING DISTRICT COMMISSION HAZARD MITIGATION PLAN 2017 UPDATE

TOTAL EXPOSURE IN THE 100 YEAR FLOOD ZONE



Legend

Level of Exposure

- Low
- Medium-Low
- Medium
- Medium-High
- High

Miles

0 2 4 8 12 16

The Total Exposure in the Floodplain (TEIF) analysis was run for the 100 year FEMA floodplain using 1000 square foot grids based on Census Block data. Areas with high exposure have a greater dollar value of property exposed to the 100 year floodplain than areas with low exposure. Areas without mapped exposure are not in the 100 year floodplain.

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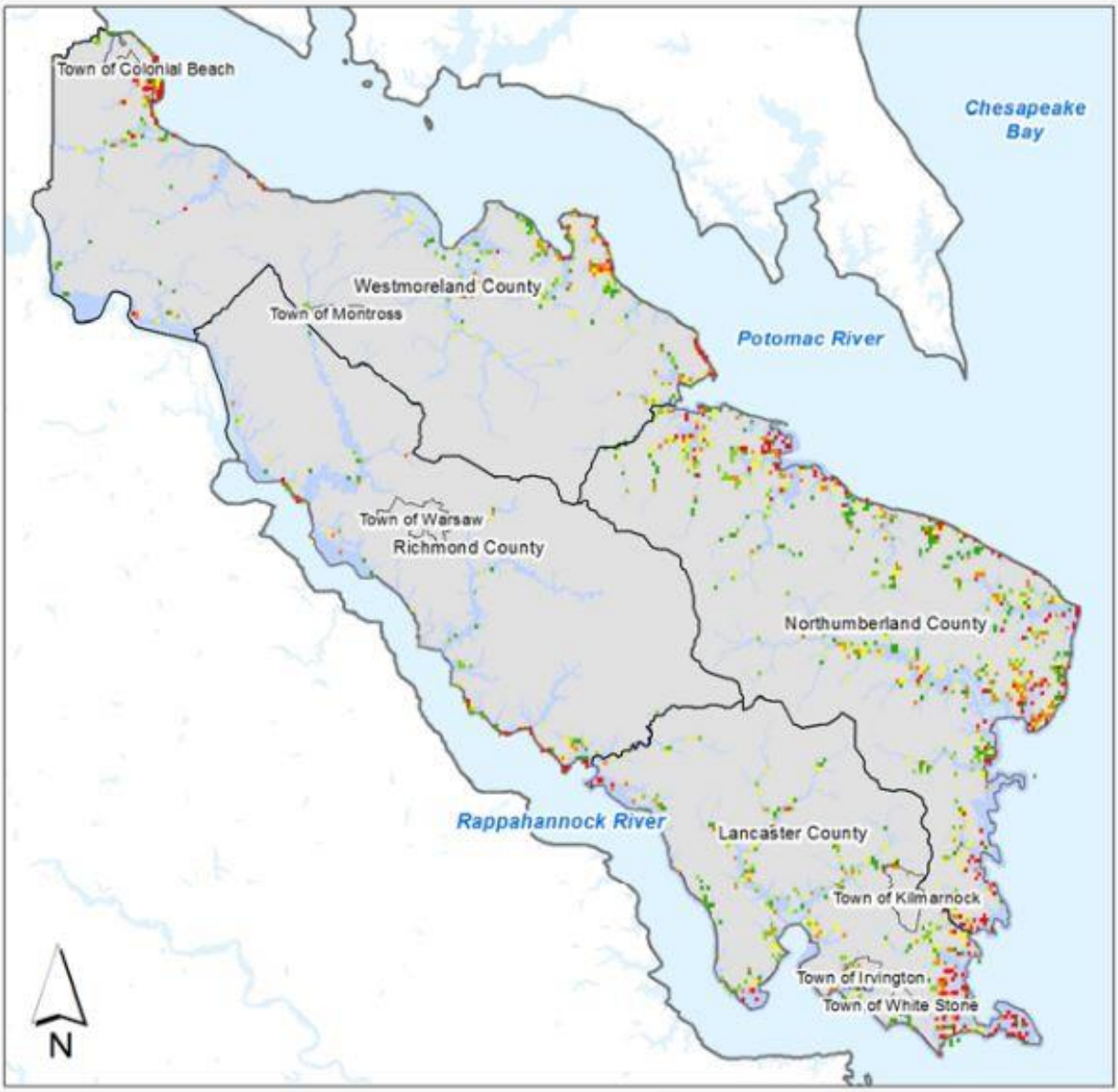
NORTHERN NECK PLANNING DISTRICT COMMISSION HAZARD MITIGATION PLAN 2017 UPDATE

TOTAL EXPOSURE IN THE 500 YEAR FLOOD ZONE



Legend

Level of Exposure

- Low
- Medium-Low
- Medium
- Medium-High
- High

Miles

0 2 4 8 12 16

The Total Exposure in the Floodplain (TEIF) analysis was run for the 500 year FEMA floodplain using 1000 square foot grids based on Census Block data. Areas with high exposure have a greater dollar value of property exposed to the 500 year floodplain than areas with low exposure. Areas without mapped exposure are not in the 500 year floodplain.

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Current state of the water supply

To date, the Town has relied entirely on groundwater from wells for its potable water supply. The Colonial Beach water supply system is operated by the Public Works Department under the direction of the Town Manager.

In 2005, the Town contracted Dewberry & Davis to conduct a preliminary engineering report on the town's water supply system, its waste water system, and piping system upgrades. This report led to another investigation of town-wide inflow and infiltration (I&I), which is currently underway to determine the I&I volume throughout the town. There is a proposed project to increase the line size to handle existing flows, and to bypass I&I before it arrives at the wastewater treatment facility. Multiple other I&I projects have taken place over the past 20 years, and though it can be a slow process, progress is being made. Care must be taken in order to stay in compliance with reducing I&I, particularly the side stream diversion of I&I amounts and retention.

The water supply and distribution system is operated under a permit issued by the Virginia Department of Health (VDH). Service is available and provided to all populated sections of the Town. Although some residences still maintain their own wells, these are relatively few in number and are decreasing yearly. The Colonial Beach Water Works facility operates year round and is staffed every day for eight hours. Town Water Works' employees are also on call for emergencies.

Active Wells

The entire water supply for the Town is obtained from four deep wells. These include:

- Robin Grove Well -- 408 feet deep. Discharge line is a 4-inch cast iron line which feeds a 100,000 gallon reservoir at Robin Grove.
- Castlewood Park Well -- 673 feet deep. Feeds a 6-inch force main which discharges to a 150,000 gallon reservoir at Robin Grove.
- 4th Street Well -- 865 feet deep
- Waste Water Treatment Plant Facility - + 900 feet deep

These wells range in depth from 408 feet to 900 feet, and the total combined yield from these wells is approximately 1,600 gallons per minute (GPM). Two of these wells discharge into two separate reservoirs which have a combined capacity of 250,000 gallons. The 4th Street well pumps directly into the distribution grid system, but operates only when the elevated storage tank requires water. All well heads are protected by a sanitary seal and are located inside enclosed, controlled structures that remain secured from anyone other than Public Works employees. All of these wells are located in residential neighborhoods.

The waterworks facility is capable of pumping 1,500,000+ gallons per day under maximum load. Historic data shows that during "off-season" months, usage is an average of 500,000 to 600,000 gallons per day. With the new well and new 250,000 gallon elevated storage tank, the permitted system capacity has increased to approximately 1,250,000 gallons per day.

Storage Facilities

The Town has three different storage facilities:

- Robin Grove Facility: 150,000 gallon "in-ground" reservoir b. 100,000 gallon "in-ground" reservoir
- Elevated Storage Tank: Located at Dennison Street, a 200,000 gallon tank constructed in 1957. This tank was painted and cleaned in the Spring of 1993.
- Elevated Storage Tank: Located at the Waste Water Treatment Plant Facility, a 250,000 gallon tank constructed in 1997/98.

Chlorination

Chlorination of the potable water occurs at three central locations:

- Robin Grove Reservoir Facility
- 4th Street Well Facility
- Waste Water Treatment Plant Well

Distribution System

The distribution grid system consists of various size pipes ranging from 3/4 inch lines to 12 inch mains and various types of pipes such as Ductile Iron, PVC, Cast Iron, and Galvanized. The installation of a 12" main in the mid 1970's interconnected Bluff Point with the rest of Town and has improved the reliability and capacity of the entire system. The new well and elevated storage tank has also greatly enhanced the system.

Water Main Replacement

Public Works is in the second year of an ongoing water main replacement project. The objective is to replace all inadequate water mains and service laterals over the next twenty-five years. To date, approximately 15,000 linear feet of water mains have been replaced. In addition, the department is adding water meters and upgrading fire protection by installing and replacing fire hydrants.

Fire Protection

Water supply for fire protection appears to be generally adequate. New hydrants and lines are located close to major buildings (shopping center, school, yacht club). Hydrant flow tests made after the inter-connection of the Bluff Point System resulted in an upgrading of fire protection classification from a Class 9 to a Class 8 effective November 1, 1978, which applies to all areas of Town. This improved classification facilitates lower insurance rates for Town commercial and residential properties. There is an ongoing comprehensive water main replacement project which will offer an upgraded water supply and increased fire protection.

Recommended Improvements

The comprehensive review and evaluation of the existing water system identified several deficiencies in the existing system, as well as required upgrades based on projected population increases in the town and surrounding area. The water system analysis generated the following list of recommended capital improvements to provide adequate water supply and fire protection.

- Distribution System Upgrades—To provide for maximum daily demand plus fire, as well as 2010 Peak Demand Forecasts. The proposed improvements will eliminate areas of low pressure,

provide the required fire flows, replace old, undersized sections of the system that are a constant maintenance concerns, and improve the overall function and capabilities of the central water system. Additionally, the installation of radio-read water meters will enable the town to manage its water system, charge equitably, and establish water user rates that encourage conservation.

- Various line replacements (the publicly available Dewberry & Davis report contains detailed information)
- Meter Installation: The town currently has 2,160 residential water connections and 75 commercial connections. In recent years, water meters were required for new residential connections.
- Water Supply Upgrades—Based on projected population increases and subsequent water demands expected during the 20 year study period, the town will need to incorporate additional water supply around 2020 and storage around 2025.
- New ground water well
- Existing groundwater well replacement / rehabilitation
- Booster station upgrade

The Town's water supply will be subject to several stressors in the next twenty years. Between 2009 and 2018, residential connections to the water system grew from 2,160 to 2,441: an increase of 13 percent. The Town expects additional population growth in the future. The global COVID-19 Pandemic has forced many residents to work from home and has caused an influx of residents from urban areas of the Commonwealth into less populated areas, including the Northern Neck and Colonial Beach. Additionally, the Town plans to increase tourism and development. Together, this results in an increased demand for a water system that relies on groundwater from a single aquifer.

Best practices

Water supply best practices include the following:

- Addressing stormwater and wastewater issues, which benefits water quality
- Regional cooperation (e.g., Regional Water Supply Plan)
- Considering future water supply demand
- Using surface water instead of groundwater when possible
- Preserving the green infrastructure
- Conservation efforts public awareness

The Town should plan on evaluating the current capacity of the water supply system, and projecting future demands over the next twenty years. Additional infrastructure may be required, and the existing infrastructure will likely need to be updated in the long term. The Town should consider looking for surface water options when building new infrastructure. Large infrastructure projects can be expensive and time-consuming, so the Town should plan ahead on these issues. These projects should be ongoing over the next few years. In the meantime, one effective way to build a resilient water supply system is to practice water conservation as a community. The following goals should be included in the Town's water supply plans. Most are practices that residents can participate in to help protect the water supply system. However, they all require some action from the Town:

- Incorporate best conservation practices from the Regional Water Supply Plan

    - Include public education materials in billing statements
    - Adjust the pricing strategy to incentivize conservation
    - Include water conservation information on the Town website and payment portal
    - Host water conservation booths at community events
- Offer rebates to residents who replace fixtures (toilets, showerheads, or sinks) with high-efficiency ones
- Offer home use water audits
- Update any applicable plumbing code to incentivize high-efficiency fixtures
- Amend ordinances to restrict outdoor water use for landscaping or lawns

Water quality

Public water and wastewater in the Northern Neck

The following information is lifted from the Northern Neck Regional Hazard Mitigation Plan 2017 Update.

Public water systems serve residents and businesses within the towns of Colonial Beach, Kilmarnock, Montross and Warsaw. Wastewater treatment is available in the towns of Colonial Beach, Montross, Kilmarnock, and Warsaw. The Reedville Sanitary District and Montross- Westmoreland Sewer Authority provide wastewater services. Westmoreland County also serves the Coles Point and Washington District areas with public wastewater services.

Private well and onsite sewage systems serve the remainder of the Northern Neck. According to the 2016 Northumberland County Comprehensive Plan, there is a high concentration of soils of poor quality for septic tanks located in the low-lying areas seaward of the Suffolk Scarp, in addition to other upland areas located along stream beds and banks. This poor soil quality challenges future development in this region.

Urban development and water quality

A basic understanding of the relationship between Colonial Beach's natural environment and potential forms of urban development is important. This account should prove helpful in making sound environmental planning decisions, as well as assisting on a day-to-day basis with the site plan review process.

In Colonial Beach, as in other Tidewater communities, there is a direct and intimate relationship between land and water. Through the natural forces of wind, rain, and gravity, pollutants will enter the water unless barriers and filters are present. Land uses can generally be divided into two basic categories: those that protect water quality (forests, permanently vegetated fields, wetlands); and uses that cause water quality to deteriorate (most forms of human activity, whether urban or rural/agricultural).

Most land use activities involve alteration of the land, such as paving, digging, clearing, or grading. Any one of these activities will alter the natural water retention characteristics of the land, causing polluted water to reach groundwater, streams, and rivers, and eventually the Potomac River and Chesapeake Bay. The extent of degradation depends on a variety of factors, including proximity to water resources, the type of development activity and the site-specific characteristics of the disturbed land.

Impacts on water quality

Generally, development will strip the land of the absorbing capacity of its vegetative cover and replace it with impermeable (paved) surfaces, which prevent water from seeping into the soil. This allows pollutants to enter the waterway. It also increases storm-water flow and velocity into storm sewers and streams. The higher velocity scours the surface of the landscape, increases stream bank erosion, and carries soils and other pollutants for direct deposit into water courses. Large volumes of storm-water in the drainage system can increase the load on the treatment facility because of infiltration, causing storm-water to combine with sewage and overflow directly into the waterways.

All development projects, whether for residential, commercial, or public use, alter the natural vegetation, slope, and water retention characteristics of the land. Three major types of pollutants can result from development: sediments, nutrients, and toxics.

Sediments

Sediments are eroded soils and other solid materials that are transported into waterways or which are subsequently re-suspended from riverbeds or bottomlands. The presence of sediments in the water blocks the sunlight which is critical to many forms of aquatic life and can clog the gills of small fish and invertebrates. Turbidity can also cause water temperature to rise to the point where it is no longer enough to support habitats, and species of plant and animal life.

Nutrients

Nutrients such as nitrogen and phosphorus are essential for plant growth. However, in excess, they can degrade water quality and destroy aquatic habitats. Excessive phosphorus levels are an example of nutrient overloading. Too many nutrients spur the growth of algae, which interfere with light penetration, contributing to low oxygen levels, and altering food and resources available to other organisms. Fish, waterfowl and other plant and animal life dependent on the waterway's ecological system are negatively impacted by these disruptions to the food chain.

Toxics

Toxic substances released into the Potomac River and its tributaries can severely damage life forms, especially in their early growth stages. Shellfish and finfish are especially susceptible to toxic contamination, which can accumulate in the higher orders of the food chain and can pose a potential health threat with their consumption. Common toxins in everyday use include fertilizers, pesticides, automotive batteries, and other industrial and agricultural products.

Point and Nonpoint Source Pollution

Historically, regulatory programs have focused on sources of pollution such as effluent outfalls from factories and sewage-treatment plants. Modern engineering methods made it possible to recognize and regulate these sources of pollution. Despite the progress in reducing point source pollution, water quality problems have persisted.

Non-point source pollution often can have a far greater impact on water quality. Studies have shown that storm-water runoff from urban and agricultural areas contain a substantial amount of pollutants that exceeds the amounts from regulated point sources. Common nonpoint pollutants include fertilizers

(nitrogen, phosphorus), pesticides, animal wastes, heavy metals, motor oil, sediment, and other organic material.

Development activities contributing to pollution

The following activities are associated with development impact on water quality:

Clearing Land

Improper conversion of land to a more intensive use can cause changes in soil stability and slopes, vegetative cover, and site hydrology. Soil erosion is often experienced on cleared land. Inappropriate soil compaction (frequently caused by construction equipment) compounds this problem by leaving the soil too dense for adequate water and oxygen supplies to support the growth of soil-stabilizing plants.

Recontouring or filling land contributes to poor water quality. Altering wetlands or marshes by filling or restructuring will adversely affect vital breeding grounds and habitats. The practice of creating a "neat edge" between land and water with bulkheads and retention walls effectively replaces the natural wetlands' transition zone and tends to magnify problems associated with shoreline erosion. Tidal wetlands and marshes also serve as buffers to wave action against the shoreline.

Non-contiguous wetlands play an important role when located below areas of upland disturbance slowing storm-water and permitting sediments and runoff to filter and drain before reaching main water courses. However, wetlands are limited in their capacity to absorb excessive amounts of sedimentation and nutrients from poor land clearing practices and can become ineffective in their natural cleansing abilities.

The process of erosion is directly related to the removal of vegetation. Excessive clearing will result in greater probabilities of erosion. New vegetation such as lawns and transplanted trees and shrubs, are treated with fertilizers and pesticides. Further, this vegetation is less successful at retarding runoff than the natural vegetation it replaced. This is especially true for forested cover, which is of extreme importance in handling the movement of nutrients from the landscape into streams.

Construction of Impervious Surfaces

An increase in the number of impervious surfaces is a natural consequence of land development.

Surfaces such as roofs, sidewalks, roads, and parking lots collect water and speed its movement instead of allowing it to filter through vegetated soil. Roads and parking areas accumulate nutrients and toxic materials such as lead, copper, zinc, asbestos, deicing chemicals, oil, and grease from motor vehicles, as well as decaying vegetation and animal wastes. The use of pervious pavements or minimization of impervious surfaces during construction should be encouraged. Fewer parking spaces for a new development or communal parking areas rather than individual driveways could be incentivized. The Town should supply developers with up-to-date information about pervious surfaces during the planning process.

Discharges of Toxic Materials

In addition to automotive-related pollution, development provides many other opportunities for toxic contamination. These materials can originate from pesticide use, detergents, accidental chemical spills, as well as paints, solvents, and fuel, which are often disposed of in storm sewers. Construction and maintenance activities associated with lower density land uses are also a source of pesticides because of the use of weed and insect controls. Such substances can impact local ground and surface water, limiting local use (recreation/water supply).

Inadequate Wastewater Treatment

Inadequate treatment of sewage represents a major problem in water quality. On-site systems (septic tanks) can release nutrients into groundwater if improperly installed or maintained, if left unnoticed can constitute serious health problems. Off-site sewage-treatment facilities, although preferable to on-site treatment, may not remove all nutrients prior to discharge. Many treatment plants require additional techniques (tertiary) to remove certain types of pollutants. In order to combat the adverse effects of on-site systems, the Town has had a mandatory sewer connection ordinance in place for many years. This ordinance requires property owners to employ the Town wastewater treatment system, and to remove private septic tanks. The Town should continue to pursue compliance with this ordinance by requiring the connection of all new construction to the municipal sewage system, as well as enforcing the ordinance against existing structures when the use of an on-site system is discovered.

There are still residential dwellings along the waterfront that are served by private septic systems. Some of these homes are located in or near wetlands. Wetlands are subject to high water tables and raise concern of failing systems and possible contamination of groundwater supplies. A proactive, forward-looking approach to wastewater treatment that gives fair and careful consideration to all alternatives should be pursued. Developing educational materials and reaching out to residents with on-site septic will encourage them to convert to the wastewater infrastructure.

The Town will continue to work with Westmoreland County, the Northern Neck Planning District Commission, and private operators of wastewater treatment plants to enter into agreements as appropriate to address present and future needs for wastewater treatment. The Town will also investigate the need for additional regulations on sewage disposal.

Relative sea-level rise, through both rising seas and land subsidence, will create future wastewater hazards from septic systems that overflow and seep into the soil when the groundwater table rises. Protecting the recreational waters of Colonial Beach is also protecting the economic base of tourism and fishing.

Stormwater/wastewater management

Wastewater management plan

The purpose of a wastewater management plan is to increase the efficiency of wastewater treatment. It identifies both current wastewater needs, as well as projected future needs. Colonial Beach has plans to increase tourism and economic growth, and, thus, needs an adequate wastewater management system capable of supporting this growth. A wastewater management plan ensures new development

can be accommodated, without unexpected costs. The Town should consult with an engineer while developing the plan. The Provincial Planning Regulation of Manitoba provides a useful guide to the developing a wastewater management plan (gov.mb.ca/mr/plups). The completed wastewater management plan should include:

1. Information on the current system, including: current usage, maps of the existing system, how wastewater is treated, original construction costs and operating costs, and limitations and adequacy of the system in meeting demand and regulatory standards.
2. Projected needs and considerations for the next 25 years.
3. Mapping of current wastewater service, planned service, and areas that should be avoided.
4. Wastewater management requirements and costs, including: types of systems available, potential for cost sharing, maintenance and repair costs.
5. Implementation and financing.

<u>Wastewater treatment facilities</u>

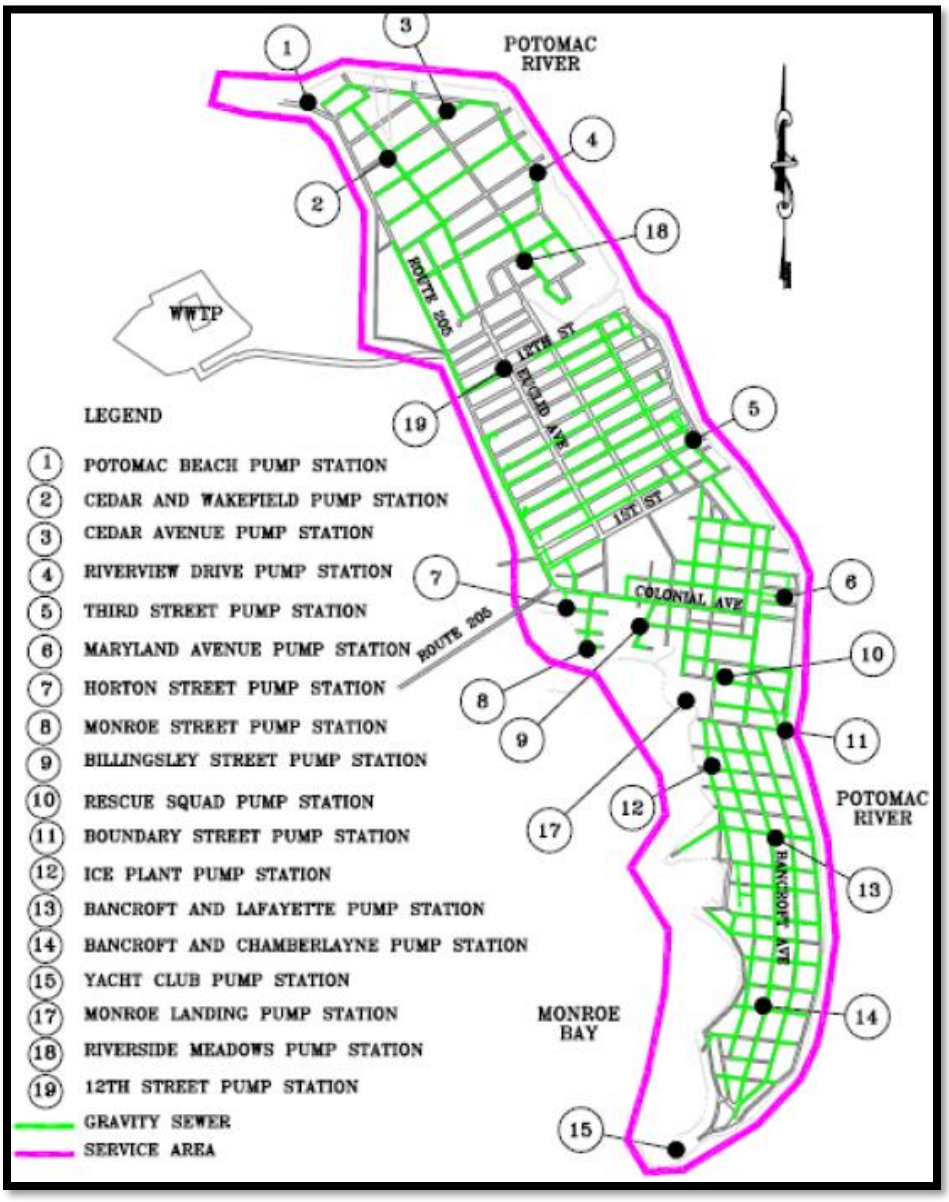


Table 29: Existing & Future Residential Connections

	2000	2005	2010	2015	2020	2025
Existing Residential (House) Connections		2,168	2,168	2,168	2,168	2,168
Future Residential (House) Connections		0	1,100	1,900	2700	3500
Total Residential (House) Connections		2,168	3,268	4,068	4,868	5,668
Total Population Projection*	3,228	4,856	7,320	9,112	10,904	12,696

*The total population projection is based on 2.24 persons per dwelling (residential [house] connection)

Table 30: Existing & Future Residential Connections & Flows

	2000	2005	2010	2015	2020	2025
Existing Residential (House) Connections		2,168	2,168	2,168	2,168	2,168
Future Residential (House) Connections		0	1,100	1,900	2700	3500
Total Residential (House) Connections		2,168	3,268	4,068	4,868	5,668
Total Future Commercial Connections		82	87	92	97	102
Total Connection Projection*	3,228	2,250	3,355	4,160	4,965	5,770
	2000	**2005**	**2010**	**2015**	**2020**	**2025**
Units	GDP	GDP	GDP	GDP	GDP	GDP
Total Residential (House) Projected Flow	322,800	485,600	723,000	911,200	109,0400	1,269,600
Total Commercial Projected Flow**	0	73,636	78,126	82,616	87,106	91,596
Infiltration and Inflow	300,000	300,000	300,000	300,000	300,000	300,000
Westmoreland County Flow		600,000	600,000	600,000	600,000	600,000
Total Flow Projection	622,800	1,459,236	1,710,126	1,893,816	2,077,506	2,261,196

* The residential projected flow is based on 100 GDP capita or 400 GDP residential connection (as specified by the Commonwealth's Sewage Collection & Treatment (SCAT) Regulations and the population numbers above.

** The commercial projected flow is based on actual average water usage of 898 GDP day/commercial connection.

Stormwater run-off

Storm water run-off from urban and industrialized areas often contains large quantities of pollutants that are found in wastewater discharges. These pollutants include heavy metals, pesticides, herbicides, and organic compounds such as fuels, waste oils, solvents, lubricants, and grease. Urban and industrial storm water is discharged through conveyances (ditches, channels, pipes, etc.) and therefore, considered point

sources under the Clean Water Act and subject to regulation through the National Pollutant Discharge Elimination System (NPDES) permit program.

The storm-water regulations define 11 categories of industrial activities that are required to apply for storm water permits. Any business associated with industrial activity through any point source must apply for an NPDES storm water permit. The permit only covers storm water discharges from point sources and does not cover "sheet" flow.

The State Water Control Board administers the federal program under the State VPDES Permit Program. The EPA requires that permits for industrial storm water discharges include a pollution prevention plan be developed for each facility. This plan describes how facilities will manage their storm water to keep pollutants from getting into the run-off as well as how the facilities will keep contaminated stormwater runoff from getting into the waters of the state to the maximum extent practicable.

Stormwater management

Specially developed criteria that address Storm water runoff by limiting the number of impervious surfaces (parking lots), or by using retention basins, porous pavement or created wetlands or ponds to slow and filter runoff.

A number of techniques can be applied to existing structures or required for new developments to alleviate stormwater runoff. Adding green infrastructure will aid stormwater management while also beautifying the Town. Requiring a Low Impact Development plan for all new developments will ensure that the construction will not exacerbate stormwater runoff. Consideration of stormwater impacts can also be written into building ordinances. Cost-effective additions to existing structures and encouraging stormwater management implementation in developments will help ensure proper stormwater management. Education of developers on these and other techniques will be key to ensuring buy-in. Many of these techniques are cost-effective or even cheaper than traditional alternatives. Most importantly, these strategies will allow the Town to foster economic growth that is resilient and long-lasting. Businesses that plan for the future in cooperation with the Town will continue to grow and provide for citizens of Colonial Beach for years to come.

Stormwater management plan

Section 9VAC25-870-40 grants authority for the development of a regional Stormwater Management Plan. The purpose of developing a regional stormwater management plan is to address stormwater management with greater efficiency and economy through the use of regional stormwater facilities, rather than individual site-specific facilities. This will mitigate the impacts of new developments, and may remediate current erosion, flooding, or water quality problems. Before developing the plan, the current stormwater system should be evaluated. This includes mapping the drainage basins and inventorying the regions with drainage issues, high rates of pollutant runoff, and stormwater-induced erosion. Further, the impact of large storm events on infiltration and inflow issues of the wastewater system needs to be analyzed.

A regional stormwater management plan shall, at minimum, address the following:

1. The specific stormwater management issues within the targeted watersheds.
2. The technical criteria pursuant to § 62.1-44.15:25 and § 62.1-44.15:28

3. The implications of any local comprehensive plans, zoning requirements, local ordinances pursuant to the Chesapeake Bay Preservation Area Designation and Management Regulations adopted pursuant to the Chesapeake Bay Preservation Act, and other planning documents.
4. Opportunities for financing a watershed plan through cost sharing with neighboring agencies or localities, implementation of regional stormwater utility fees, etc.
5. Maintenance of the selected stormwater management facilities.
6. Future expansion of the selected stormwater management facilities in the event that development exceeds the anticipated level.

Further, the EPA provides six minimum control measures (MCMs) to be addressed for compliance with the Virginia General Permit for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems (MS4 General Permit):

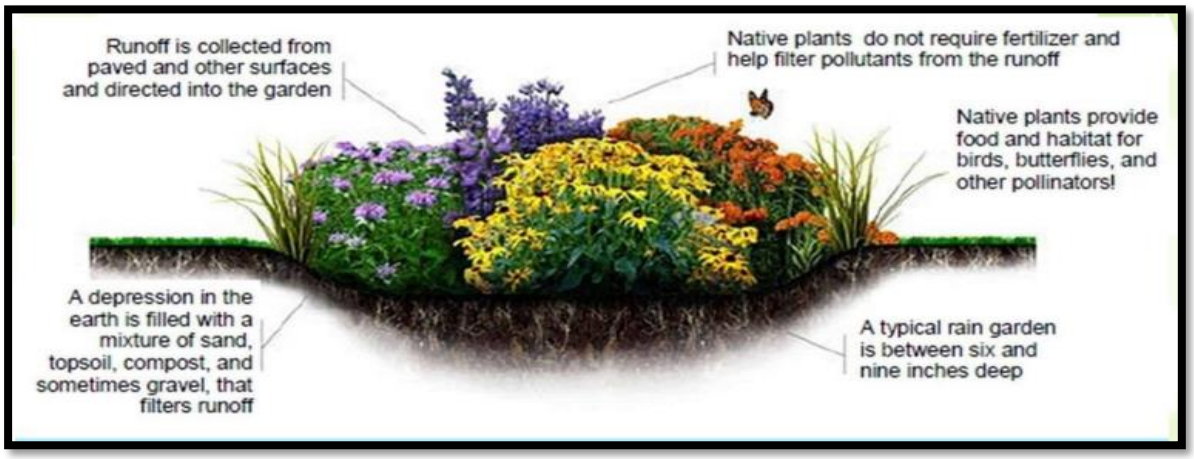
1. Public education and outreach on stormwater impacts
2. Public involvement/participation
3. Illicit discharge detection and elimination
4. Construction site stormwater runoff control
5. Post-construction stormwater management
6. Pollution prevention/good housekeeping for municipal operations

Within each MCM section, best management practices should be identified, and may include objectives, measurable goals, necessary documents, responsible parties, measures of effectiveness, schedules, and items to report. Loudoun County and the Town of Vienna each have stormwater management plans that can be used as reference by the Town of Colonial Beach when developing their own.

Green infrastructure conservation

Green infrastructure naturally captures, stores, and filters stormwater runoff. Rain gardens, trees, and other vegetation contributes to Town aesthetics while also providing stormwater filtration services to decrease the pollution in the runoff.

In addition, a Tree Canopy Study was conducted by students at the University of Virginia under the direction of Dr. Firehock. This team also conducted an audit of Towns ordinances and codes and recommended that the town continually monitor and evaluate the heath of trees. This type of green infrastructure can offset stormwater run-off and otherwise assist in reducing the heat island effect.



Boating

Recreational and commercial boating and fishing is an important industry to the Town. Watermen depend on their vessels for harvesting fresh crabs, rockfish, and other seafood vital to the local economy.

Residents and visitors alike also enjoy the Potomac River and Monroe Bay for fishing, water skiing, sailing, and numerous other water sports. Although boating's influence on water quality pales in comparison to that of other non-point sources, its impact on water quality should not be overlooked. The growing popularity of boating as a recreational activity enhances this concern. Boating is an attractive sport for many visitors.

One potential threat to the water quality from recreational and commercial boats is sewage discharge. Although the effect of a single boat may seem insignificant, when multiplied by the numerous boats that use the waters in and around Colonial Beach throughout the year could be significant. Boaters are reliant on portable toilets or the availability of onshore facilities. Vessel discharges pose the greatest threat to water quality in places where boats congregate, such as marinas. These sites are in the quiet protected waters of Monroe Bay -- an ecologically fragile area with restricted circulation (areas slow to flush themselves of contaminants).

The Health Department requires all marinas to have both pump-out facilities and dumping stations for portable toilets. Exceptions are made for those marinas which cater to only small boats or transient visitors. The Health Department makes yearly inspections to ensure these requirements are satisfied.

Additionally, the Clean Water Act makes it mandatory for every boat with an installed toilet to have a Marine Sanitation Device (MSD). There are three types of MSDs. Types I and II treat the raw sewage on board and then discharge treated sewage into the water. Type I has proven to be unreliable and often ineffective in treating the sewage. Type II facilities require a great deal of power to operate and therefore, are very seldom seen on recreational boats. MSD type III is a holding tank for raw sewage, which must be pumped out periodically. The Coast Guard is charged with enforcing this ordinance.

Some recreational boaters may be uneducated on the harmful effects of waste discharges, increasing the likelihood of improper emissions. A concentrated public awareness and education effort, greater enforcement, and more facilities can help to reduce such practices. Collectively, facilities covered by these regulations that discharge storm water on the health of its surrounding waters and the Town, must work cooperatively with state and federal agencies in protecting the health of the state's waters.

Environmental legislative control measures

State, federal, and local governments have all enacted various legislative control measures to stabilize and improve environmental quality. The intent of the following discussion is to highlight the major legislative acts and programs that pertain specifically to improvement of water quality, both locally and in the greater context of the Chesapeake Bay.

Wetlands Regulations

Two major legislative acts protect wetlands from alteration, destruction, or potential misuse: The Clean Water Act of 1972, and the Chesapeake Bay Preservation Act of 1989. Further discussion on the Bay Act regarding wetland management appears on subsequent pages.

Federal

The major federal regulatory tool governing activity in wetlands is Section 404 of the Clean Water Act. Jointly administered by the U.S. Army Corps of Engineers (COE) and the Environmental Protection Agency (EPA), Section 404 establishes a permit program to regulate "discharges of dredged or fill material" into waters of the United States, including most wetlands (tidal and non-tidal). The U.S. Fish and Wildlife Service (FWS) and the National Marine Fisheries Service (NMFS) have important advisory roles in the permit review process.

It should be noted that Section 404 is not a comprehensive mechanism for wetland's protection. Activities such as drainage and groundwater pumping are often conducted without discharging dredged or fill material, and thus are not regulated under Section 404. Moreover, some COE districts do not consider isolated (non-contiguous) wetlands to be under federal jurisdiction if they do commerce. As a result, a broad range of supplementary and complementary programs have been enacted at the federal, state, and local level aimed at protecting wetland resources.

In order to merge wetland definitions and identification methods, the four chief federal agencies (COE, EPA, FWS, S.S.) adopted a single manual in 1989 entitled "The Federal Manual for Identifying and Delineating Jurisdictional Wetlands." This manual is used to identify jurisdictional wetlands subject to Section 404 and the "Swamp buster" provision of the Food Security Act. The manual recognizes that all federal wetland definitions are conceptually the same; and they each include three basic elements:

- Hydrophilic Vegetation
- Hydric Soils
- Wetland Hydrology

While specific criteria related to these three characteristics are currently under federal review, they will continue to be the overall determinants of a jurisdictional wetland. A revised federal manual, which proposes to narrow the definition of a wetland, has not yet been approved and is contingent on the review of newly appointed federal officials.

The U.S. Fish and Wildlife Service have produced National Wetland Inventory (NWI) Maps, which identify the size, shape, and type of wetlands in accordance with NWI specifications. These maps are presently available for most of the continental United States. NWI maps are particularly useful since they utilize standard 1:24,000 topographic maps (USGS) as base maps to depict wetland data. NWI maps can generally be used delineate wetland boundaries on parcels; however, in urbanized areas where the smaller lot sizes and higher land values are present, more detailed mapping or individual field inspections may be needed to resolve wetland boundary disputes.

Erosion and Sediment Control Ordinance

In accordance with State mandate, the Town has had in place for several years an Erosion and Sediment Control Ordinance (the "Ordinance") which outlines the requirements for controlling and reducing runoff resulting from development. Although the State requires that only those land disturbing activities of five thousand (5,000) square feet or greater be subject to the safeguards of an Erosion and Sediment Control Ordinance, the Town has taken the initiative to reduce the local requirement for compliance to land disturbing activities of only twenty-five hundred (2,500) square feet. Although the Town's Ordinance states that the Building Official is responsible for administering the Ordinance, the Town is in the process of ensuring that additional officials, including the Zoning Administrator, are certified in reviewing erosion and sediment control plans, as well as inspecting implemented control measures.

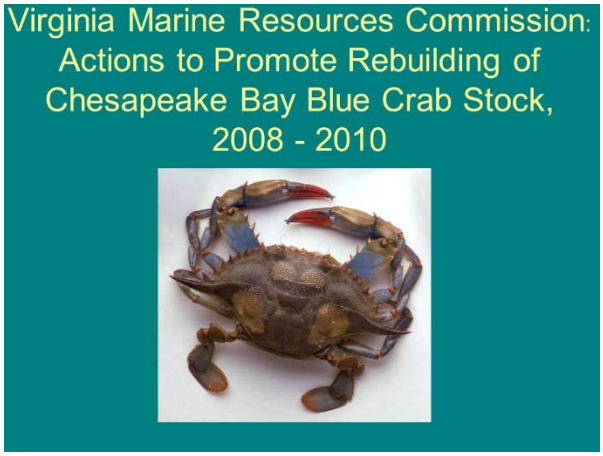
Additionally, the Town has initiated the publication and distribution of an Erosion and Sediment Control Guide. This pamphlet will be designed to aid both the general public and the developer in understanding the necessity, processes and requirements associated with erosion and sediment control plans. The new wetlands law (2020) in the State of Virginia will call for changes in policy, procedures and ordinances.

State and Local

Unlike several other states, the Commonwealth of Virginia has not enacted a comprehensive wetland regulatory program. The Virginia Wetlands Act of 1972 extends protection only to tidal wetlands. Non-tidal wetlands in Virginia remain under federal jurisdiction as provided for in Section 404 of the Clean Water Act. All states, including Virginia; however, have been given review and certification authority by Section 401 of the Clean Water Act over "any federal license or permit that may result in a discharge to waters." Section 401 is an important provision that allows states to deny or condition the issuance of federal permits in order to protect state water quality.

Development control to protect tidal wetlands in Virginia is a joint responsibility of the Commonwealth and its local governments. The Virginia Marine Resources Commission (VMRC) is the lead agency for the program. Other state agencies participate in the review of wetland permits: The State Water Control Board (SWCB), the Department of Transportation (VDOT), the Institute of Marine Science (VIMS) and the Department of Conservation and Historic Resources (C&HR).

Local governments can establish and administer their own regulatory programs through local Wetlands Boards and ordinances, which conform to the model state legislation. The Washington Magisterial district, which encompasses Colonial Beach, is represented on the Westmoreland County Wetlands Board. This Board is charged with protecting wetlands from unreasonable intrusion by development and enforcing violations of the state Wetlands Act. The Wetlands Board may also help develop mitigation measures that minimize damage to wetland resources. Decisions by the local board are subject to final review by VMRC, which may accept or overturn the local decision.



Wetlands Permitting and Enforcement

Because a variety of federal, state, and local agencies are involved in wetlands regulation, a joint permitting process has been established to improve interagency coordination and reduce the time involved in obtaining a permit. A processing number, used by all regulatory agencies, is assigned to the proposed project by VMRC. The Corps of Engineers and the local Wetlands Board receive copies of the application. The reviewing agencies issue permits after on-site inspections. The permitting process includes procedures for public hearings and appeals.

Both VMRC and the local Wetlands Boards are empowered to issue stop work orders to enforce the Virginia Wetlands Act. A fine and an order to restore the wetland to its original condition may be applied by the state courts. Under federal law, similar enforcement actions may be taken administratively by

either the COE or EPA to prevent illegal discharges in wetlands. EPA has veto power over any Corps-issued permit and makes the final determination.

There is a new Wetlands Law of 2020 that requires intensive review and coordination with multiple services. The Planning Commission should investigate and research the new law for a new Wetlands Ordinance.

The Chesapeake Bay Preservation Act

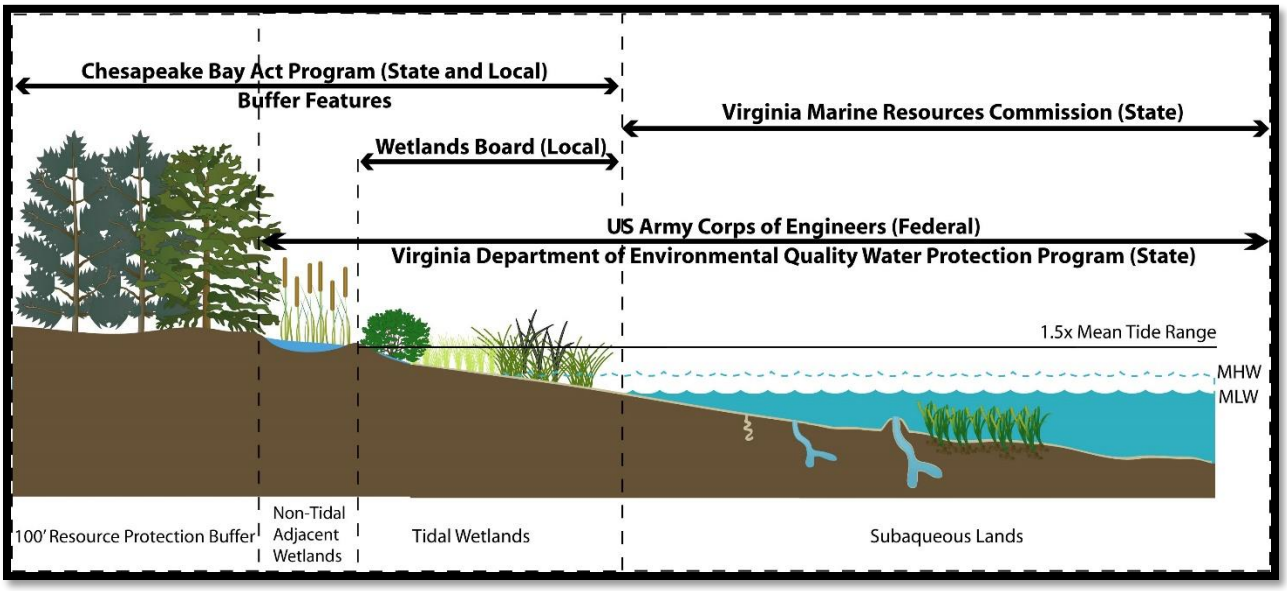
With the passage of the 1989 Chesapeake Bay Preservation Act, local governments were charged with the responsibility of adopting land-use regulations protecting wetlands and adjacent buffer areas. Unlike regulations enforced by VMRC or the Corps, the Bay Act requires the establishment of 50 to 100-foot buffers around all tidal and contiguous non-tidal wetlands. Furthermore, the Bay Act does not allow for mitigation techniques such as replacement wetlands as currently permitted by VMRC and the Corps. The Bay Act, however, does grant local government's greater flexibility in determining the protection given to isolated (non-contiguous) wetlands, which can often be more difficult to identify. Once isolated wetlands have been mapped and identified, they are usually included in a locality's designated resource purposes and are proximate to water resources, potential benefit can be realized if redeveloped appropriately per IDA criteria.

The Northern Neck Hazard Mitigation Plan, 2017 Update (HMP), which Colonial Beach staff played a role in developing, has a review of the regional approach to compliance with the Chesapeake Preservation Act. In addition to the Chesapeake Bay Preservation Act, Virginia is a signatory to the Chesapeake Bay Agreement, a unique regional partnership aimed at restoration of the Chesapeake Bay.

Communities in certain parts of the state are required to implement local land use controls to minimize runoff and other adverse impacts to the water quality of the Bay. Each PDC jurisdiction is part of the Tidewater area and therefore required to enforce Bay Act provisions locally. The program's agricultural non-point source pollution reduction efforts have been led by the Northern Neck Soil and Water Conservation District. Prevention of sediment, nutrient and other pollution from land development is directed through erosion and sediment control and stormwater management ordinances. The local Bay Act program has three phases: Phase I program elements included the designation of local Chesapeake Bay Preservation Areas (including Resource Protection Areas and Resource Management Areas that often include floodplains) and adoption of local ordinances that include the required performance criteria. Phase II required local governments to adopt a comprehensive plan or plan element that addresses the protection of water quality through a number of policy areas. Phase III required an assessment during 2017 to review progress toward meeting the nutrient and sediment pollutant load reductions necessary for Bay restoration. See Northern Neck Hazard Mitigation Plan, 2017 Update pp. 6-16.

Land Use and Development Performance Criteria

The Town has evaluated, analyzed, and modified the model ordinance provided by the Chesapeake Bay Local Assistance Department. The Town adopted criteria for land use developments in the RPAs and RMAs. Sections of the ordinance provide for site plan review to control non-point source pollution and best management practices for development. Criteria addresses development siting and setbacks, buildable areas, impermeable surfaces, buffer vegetation and landscaping and shoreline and wetland's protection. Water quality impacts assessments are required for major developments (defined as over 2,500 square feet of land disturbance).



Local compliance with the Chesapeake Bay Preservation Act, erosion and sediment control regulations and stormwater management start with proposed development plan review by the local planner. Use of the NNPDC can provide additional support during project review and code enforcement for hazard mitigation such as elevation of flood prone residential buildings and ensure that FEMA Elevation Certificates and Floodproofing Certificates are properly completed for applicable projects.

Floodplain management

The following information is lifted from the Northern Neck Regional Hazard Mitigation Plan 2017 Update.

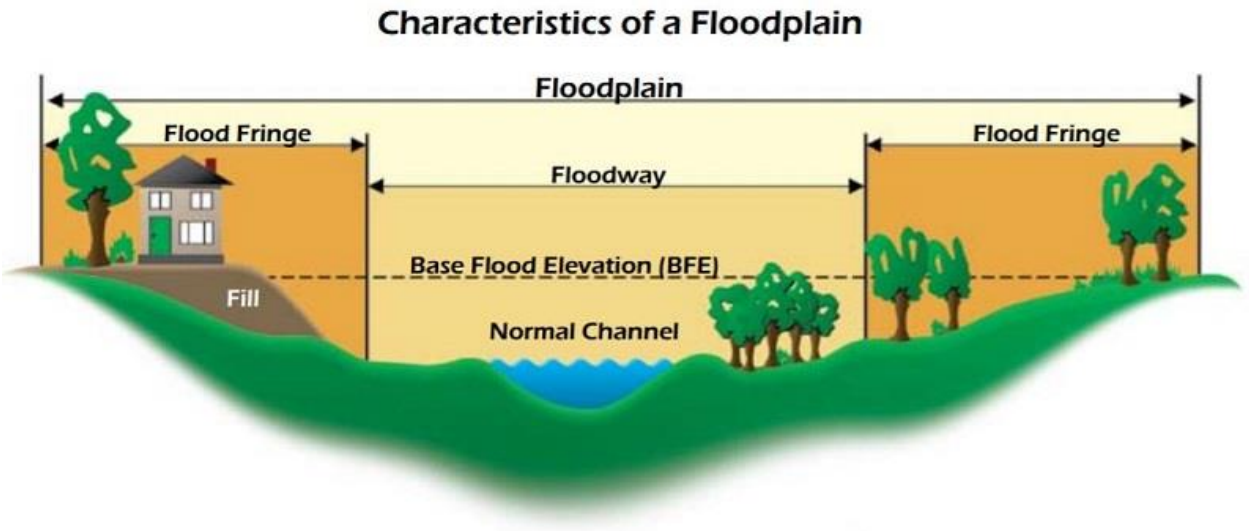
Communities that regulate development in floodplains participate in the National Flood Insurance Program (NFIP). In return, the NFIP makes federally-backed flood insurance policies available for properties in the community. Table 6-5 shows the effective Flood Insurance Rate Capabilities, Plan Implementation, and Maintenance 6-10 Map (FIRM) dates for each NFIP participating Northern Neck community as well as other applicable historic information about the community's participation. FIRMs and Flood Insurance Studies (FIS) were developed by FEMA to show the boundaries of the one-percent and 0.2 percent annual chance floodplain. As the table shows, FEMA's recent investment in updating flood risk hazard maps, especially in high risk coastal areas, has resulted in revision of the Northern Neck community flood hazard risk maps. Following lengthy local and public citizen review of draft FIRMs and

FIS reports, each jurisdiction's elected officials adopted the FIRMs, FIS, and an updated floodplain management ordinance or zoning ordinance section with an embedded floodplain management ordinance.

Despite new flood risk mapping, local landscape features such as increased frequency of coastal storms, sea-level rise, and coastal erosion rates are taken into consideration by local governments reviewing requests for development or construction within the regulated floodplain called the Special Flood Hazard Area (SFHA).

Statutes of the Commonwealth of Virginia provide cities and counties land use authority. Floodwater control is empowered through §15.2-2223 and §15.2-2280 of the Code of the Commonwealth of Virginia. Each Northern Neck jurisdiction with land use authority has adopted a local floodplain ordinance as a requirement of participation in the NFIP.

Each community has designated staff who enforce their floodplain management ordinance, which is included, in some cases, in the zoning ordinance. The Department of Conservation and Recreation's Floodplain Management Program, including their NFIP Coordinator and his staff, conduct Community Assistance Visits or Community Assistance Calls (CACs) to review program administration locally, on about a two-year rotation.



Local Approaches to Water Quality Protection

The Town of Colonial Beach employs several approaches to protect and enhance water quality. The Town's environmental goals, objectives and strategies provide guidance on specific land use designations shown on the Future Land-Use Plan. The Town's CBPA, Floodplain, Subdivision and Zoning Ordinances offer performance criteria and implementation mechanisms for protection of water quality.

The Town also complies with local, state, and federal guidelines concerning wetland protection and management, a major aspect of water quality.

The following general concepts and approaches to water quality protection are utilized throughout the Town's various land use ordinances. Copies of these ordinances are available at the Town Hall.

Water quality protection definitions

Performance standards - Standards that regulate land use activities by setting limits on the amount of disturbance a development may cause.

Buffer Strips - A strip of land, usually left in or returned to native vegetation, which protects an area from adjacent or nearby land uses by filtering sediment and runoff along rivers and streams.

Setbacks - The minimum distance a building or other development must be from a watercourse or sensitive area.

Density Requirements - Requirements that govern the average number of families, persons, or housing units on a parcel of land. Density requirements can be flexible, and when combined with cluster development, can help maintain open space by permitting higher densities in one area as a tradeoff for lower densities and open space in other areas. Density limits for water quality protection tend to encourage large lot zoning, although cluster development could also result.

Best Management Practices (BMP's) - Special practices that make use of filter strips, no-till farming, retention basins and any number of other management techniques that are successful in limiting or controlling land disturbing activities.

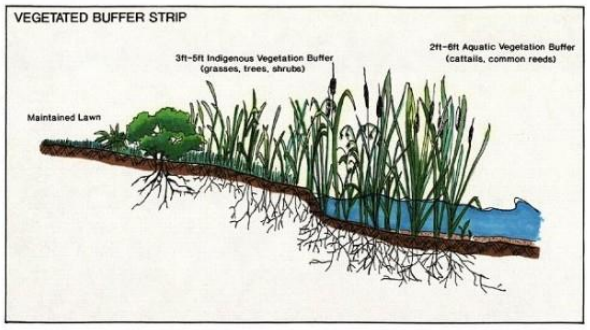
Specialized BMPs have been created to guide forestry, agricultural, and urban development practices.

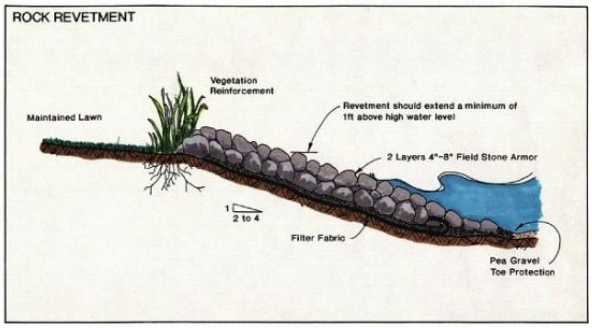
<u>Shoreline erosion control guidelines</u>

Introduction

The Shoreline Programs Bureau of the Department of Conservation and Recreation, Division of Soil and Water Conservation provided guidelines for developing shoreline properties at the request of the Town's Erosion Committee. These guidelines address setbacks, buffers, and nonstructural and structural shoreline erosion control measures. Historical average shoreline erosion rates anticipated normal storm conditions and requirements of the Erosion and Sediment Control Ordinance of the Town of Colonial Beach (Chapter 6), Westmoreland County Wetlands Zoning (Chapter 16) and Chesapeake Bay Preservation Area Overlay District of Colonial Beach (Article 22) have been taken into consideration.

PLAN ALTERNATIVES FOR SHORELINE EROSION CONTROL





NOTE: Design specifications shown herein are for typical structures. The detailed design of shoreline protection structures must be based upon analysis of local conditions.

Source: SEWRPC.

Living shorelines are the preferred approach of the Commonwealth to erosion control whenever possible. The Comprehensive Coastal Resource Management Guidance document and resources through the Comprehensive Coastal Resources Management Portal provide suggestions based on the shoreline characteristics and should be referenced when implementing erosion control measures.

Setbacks and buffers

Building setbacks are based on the physical conditions of the site, such as bank height and shoreline erosion rate. The setback moves inland as the shoreline retreats. The Chesapeake Bay Preservation Area Overlay District requires a 100-foot vegetated buffer. The buffer is specified to be adjacent to and landward of the Resource Protection Area (RPA) components. The distance a building should be constructed from the base of the bank should be the larger of either the 100-foot vegetated buffer or the building setback for shoreline erosion control. Contact the Town of Colonial Beach Zoning Administrator for additional information.

No Shoreline Erosion Control Planned

In accordance with the Chesapeake Bay Preservation Area Overlay District, a 100-foot buffer is required in new subdivisions and land developments. Encroachment into the buffer will be determined by the Town on a case-by-case basis.

The following building setback allows for shoreline erosion where no shoreline erosion control structures are planned for the subdivision of lot. The building setback is based on the bank height, shoreline erosion rate and design life of the building is assumed to be 50 years. The building setback is measured landward from the base of the bank. The recommended building setback is:

Building setback (ft) = 25 ft. + (bank height x 2) + (annual shoreline erosion rate x 50 years)

Shoreline Erosion Control Planned

The Chesapeake Bay Preservation Area Overlay District requires a vegetated buffer of 100 feet, as discussed above. Encroachment into the buffer will be determined by the Town on a case-by-case basis.

The building setback between a shoreline erosion control structure installed along the bank (I determine if a plan of development will be required. All required wetlands permits from federal, state, and local agencies must be obtained and submitted to the Zoning Administrator before land disturbing activities commence.

One of the Town's capital projects underway is the Robin Grove Living Shoreline project, which was made possible by a grant awarded by National Fish and Wildlife Foundation (NFWF). Grants are continuing to be pursued for shoreline stabilization along Monroe Bay Avenue.

Shoreline Erosion Control Structures

Minimum design criteria are provided in the following section for riprap (large rock) revetments, wooden bulkheads, riprap wedges for an eroding marsh fringe, groins, and gabion structures. The term "riprap revetment" refers to a facing of stone installed to protect an embankment. A bulkhead is a wall designed to retain soil and protect the land against wave attack. A

riprap wedge is designed to protect an eroding marsh fringe from further undercutting. Groins are designed to trap and retain sand moving along the shore. A gabion is a patented wire basket which is filled with rock to create a protective structure. The guidelines provided are based on average storm conditions. Extreme storm conditions may damage structures.

There are alternative shoreline erosion control methods and materials to the structures discussed above. As with all structures, design is site specific and should be based on sound technical advice. For information regarding shoreline erosion control, contact:

Department of Conservation and Recreation
Division of Soil and Water Conservation Shoreline Programs Bureau
P.O. Box 1024 Gloucester Point, VA 23062
(804) 642-7121

All required wetlands permits from federal; state and local agencies must be obtained and submitted to the Zoning Administrator before land disturbing activities commence. Land disturbance in the RPA and buffer area may require a plan of development as discussed in the Chesapeake Bay Preservation Area Overlay District. Contact the Zoning Administrator for information about required permits.

Wave energy categories

The minimum design criteria for riprap revetments and bulkheads were developed for shoreline "reaches" based on the tide range and anticipated wave energy at the shore. The term refers to a section of shoreline exposed to similar wave conditions and having the same approximate erosion rate throughout. The shoreline reaches identified in the publication *Shoreline Situation Report: Westmoreland County* were divided into high and low energy categories based on anticipated average storm condition. The entire report is available in the Zoning Administrator's office.

Typically, best management practices for low energy shorelines prefer living shorelines over hardened shorelines. New state requirements also mandate a preference for living shorelines where possible.

Minimum design criteria: Riprap wedge for an eroding marsh fringe

A riprap wedge is designed to protect an eroding marsh fringe from further undercutting. The structure is suitable for protecting eroding marsh shorelines in Town of Colonial Beach.

The design criteria for a riprap wedge are like the design criteria for a riprap revetment. The rock size, slope, toe/apron depth can be found in Table 3. The height of the riprap wedge should not exceed the height of the marsh peat surface so tidal flow into the marsh will not be restricted. However, the low elevation of the structure allows overtopping by storm waves and may result in damage to the structure or erosion of the marsh. Particulars in developing the criteria depends on local and state laws.

Minimum design criteria: Groins

Groins are designed to trap and retain moving sand in the littoral zone. The design of groins is site specific and depends on the sediment supply, beach slope, near shore conditions, wave climate, currents, and other factors. Low profile groins are recommended. From this point, the top should rise shoreward with a slope of 10:1 (horizontal/vertical) or flatter until it reaches an elevation of 2 feet above the mean low water elevation. The structures can be constructed of timber, riprap, or other materials. Generally, the spacing between adjacent structures should be twice the length of the groin. Normally, the maximum groin length permitted is a length equal to 48 feet channel ward to the mean high-water position.

Table 29: Groin design

Category	Reach No.	Reach Name	Riprap Structure Minimum Height	Slope (h/v)	Armor Rock Weight (lbs)	Amor Rock Layers	Riprap Apron Width (ft)	Splash Apron Width (ft)	Filter Cloth
Low	11	Monroe Bay Shoreline	6 MLW	2:1	30	2	1 ft below MLW or 2 ft apron	2	Yes
High	12	Potomac River Shoreline	+10 MLW	2:1	300	2	4 ft below MLW or 8 ft apron	8	Yes

Minimum design criteria: Gabions

Gabions are patented wire baskets which, are filled with rock to form protective structures. All gabions used must be PVC coated. Gabions can be used to build retaining walls, groins, and breakwaters. The design of a gabion structure is site specific and should be based on sound technical advice.

Dark skies

Citizens have raised the issue regarding the loss of the night sky in Colonial Beach. With the environment being affected by every technological and man-made device, it is time to ask what kind of sky we want to see enhance the Town's attraction to citizens and visitors. The star bright sky at night is affected by the style of lighting we choose to light our streets in town and in neighborhoods.

Light pollution has been linked to a range of ailments in humans and abnormal behavior in wildlife. We need to investigate these new dangers to our environment.

Impacts of the 2020 coronavirus pandemic

The global Pandemic hit our society in many ways. Businesses had to close their doors and only offer services outside or pickup orders at restaurants. Colonial Beach experienced an economic downfall and all were to wear masks when going to a food store, for other people's protection. People had to cope with isolation and multiple changes. Children were learning online, parents were working from home and our seniors coped with loneliness and separation from family. Colonial Beach organizations helped where they could, and many donated to food banks in the area to keep people fed.

The environment changed so much that overall pollution dropped 17 percent throughout the world. The Potomac River became cleaner, multiple birds sang happily and plants and flowers flourished. Skies are blue and clean and the stars are more visible than before. The Town has an obligation to stop the pollution from spiking up again. Measures should be determined to make this happen.

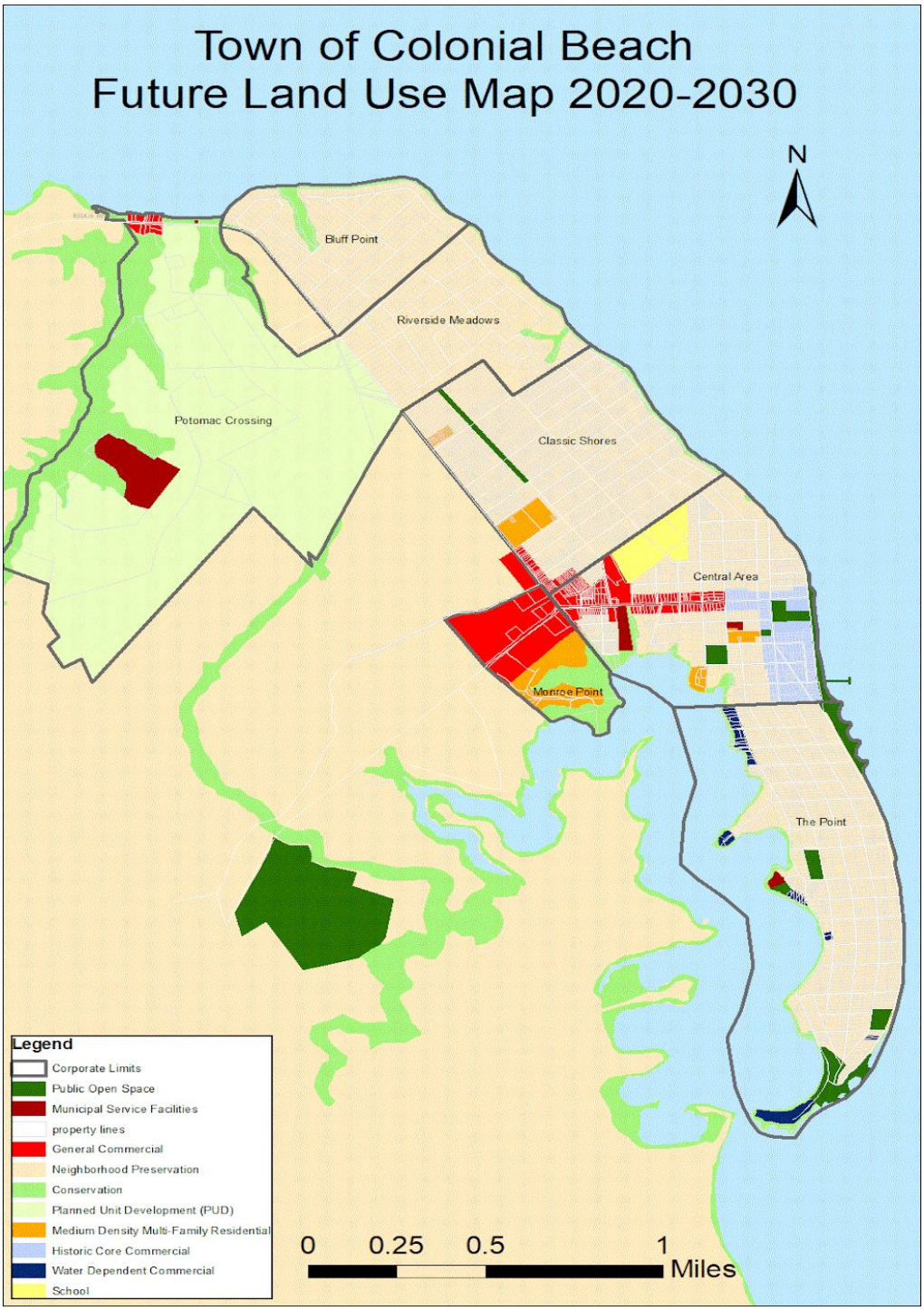
Policy and future recommendations

- The Town should work cooperatively with the State Water Control Board, EPA, DEQ, PRFC, VMRC, and other regulatory agencies that oversee storm water discharge and other environmental areas in order to achieve the best possible water quality in Monroe Bay and Potomac River.
- The Town should purpose improving the RAFT scorecard by implementing the outlined recommendations in the full report.
- The Town should take an active role in ensuring that all industrial and heavy commercial businesses subject to the storm-water regulations and environmental laws as well as filing the appropriate permits.
- The Town should consider amending the permitting process and/or building ordinances to further encourage and incentivize stormwater management for all new developments (such as a low-impact development standard for all new developments). The Town should also consider building an online low-impact education portal to help developers find cost-effective methods of offsetting their development externalities.
- The Town should consider partnering with a private organization such as the Low Impact Development Center for assistance in developing a stormwater management system that is able to support the Town's goal of increasing tourism.
- The Town must work cooperatively with state and federal agencies in providing public education programs, which discuss the problems and effects of boat waste discharge and point-source pollution.
- The Town must encourage marinas to make pump-out facilities more accessible and easier to use.
- The Town must work cooperatively with the Department of Health, the State Water Control Board, and the Coast Guard to ensure proper enforcement and penalty for those who ignore boating laws.
- The Town should work to create alternative energy plans.
- Ordinances should be reviewed and updated according to Laws affecting all areas of Environment and Resources.
- Planning Commission members should attend meetings to upgrade their knowledge as well as responsibility to the Town.

Future land use plan

The Future Land Use Plan is a generalized land use concept for Colonial Beach and the surrounding area. The plan is largely a representation of the existing land use pattern, with emphasis on redevelopment opportunities for the town's vacant and underutilized commercial areas. Throughout this section, ideas gathered from community surveys and workshops have been incorporated.

Town of Colonial Beach future land use map



Designations

Conservation District

The Conservation District is comprised of Chesapeake Bay Resource Protection Areas, including area shorelines, wetlands, water bodies, and drainage ways. Some of these areas are still in their natural state, while others, in the more developed sections of town, have been modified. The need to preserve these areas has been a recurring theme for the town. Preferred uses for the Conservation District are limited to natural areas and public open space. Recreational amenities, such as trails, boat docks, and boat ramps are permissible, provided they are designed in an environmentally sensitive manner.

Public Open Space

The Public Open Space Designation includes existing developed and undeveloped public parks, beaches, and trail corridors. The need for additional recreational land is a pressing issue in the northern sections. The purpose of the Public Open Space district is to identify public open space opportunities throughout town to meet the existing and future open space demands. Preserving municipally owned properties into green spaces can help to address stormwater drainage and flooding problems. Conservation easements or eminent domain could be used to convert these into parks or water retention ponds into green spaces can help to address stormwater drainage and flooding problems. Conservation easements or eminent domain could be used to convert these into parks or water retention ponds.

Municipal Services

This designation includes all the town's various pump stations, well sites, the wastewater treatment plant facility, and the public works facility. These areas are scattered throughout town and play a vital role in the transfer of municipal services, such as water, sewer, and trash collection.

School

The School Designation includes all sites and facilities owned by the Colonial Beach School District. This designation encompasses one land area. The location of the Elementary and the High School is a large tract of land and serves all age children.

Neighborhood Preservation

The Neighborhood Preservation District includes all existing residential neighborhoods: Bluff Point, Potomac Crossings, Riverside Meadows, Classic Shores, Central Area, the Point and Monroe Point. Each of these individual neighborhoods is unique in their housing stock, lot sizes, and development patterns.

Potomac Crossings Neighborhood

Cluster developments differ in several ways from traditional developments currently found throughout the town. They usually site homes on smaller lots and there is less emphasis on minimum lot size. Sometimes densities are increased on a given acreage, but not all the time. The homes are clustered on a smaller portion of the land and the remaining land is converted into protected open space and shared by the residents of the subdivision and possibly the entire community.

Bluff Point / Riverside Meadows

These two residential neighborhoods are located in the northern section of town. They are comprised of single-family homes on large lots compared to other areas in town, averaging between 10,000 square foot (SF) and 12,000 SF. Preferred uses for these areas should be multifamily and single-family residential homes, private boat piers, and parks. Maximum lot coverage areas should be consistent with existing patterns.

Classic Shores

The Classic Shores residential area is located between Riverside Meadows and the Central Area. It is comprised of both vacant land and occupied single-family homes on very small lots, averaging about 3,000 SF. There is also a mix of several multi-family structures throughout the neighborhood. Preferred uses for this area are multifamily and single-family residential homes, private boat piers and parks with opportunities for multi-family structures that maintain the character of the area. Maximum lot coverage areas should be consistent with existing patterns.

Central Area / The Point

The Central Area and The Point residential neighborhoods are located in the central and southern section of town and are important components in the town's history and architectural styles. They primarily are comprised of single-family residences on lots averaging 7,500 SF. There are also a few multi-family structures mixed in among the single-family residences. Preferred uses for these areas should be multifamily and single-family residential homes that maintain the character of the area, private boat piers, small restaurants, and multiple Marinas.

General Commercial

The General Commercial district is located primarily along Colonial Avenue and sections of Rt. 205 surrounding its intersection with Colonial Avenue. The general commercial district has been limited to these areas to encourage redevelopment of existing commercial areas rather than expanding into other areas. Development of older blighted portions of the Colonial Avenue corridor should be encouraged and new businesses pursued.

Historic Resort Commercial

The Historic Resort Commercial district is located in the Central Area, and encompasses all the parcels along Washington Avenue, areas to the boardwalk and a smaller section on Colonial Avenue. Future land uses in this area are intended to provide recreational and business opportunities designed to foster tourism. Mixed use development with commercial and residential should preserve the historical integrity of the area.

Maritime Commercial

The Maritime Commercial designation serves an important role in preserving the water dependent on commercial establishments that are located adjacent to Monroe Bay and the Potomac River. Its purpose is to provide sufficient space in appropriate locations for a variety of water dependent commercial activities, such as marinas and commercial piers, as well as restaurants and inns. As such, all the existing parcels that currently fit this category have been designated as maritime commercial. As these areas are redeveloped, care should be taken to protect and buffer adjacent residential areas.

Specific area districts

Gateway and Intersection Improvements

Gateway and Intersection Improvements have been identified at three locations in town, all located along Rt. 205. The two gateway designations occur at the town's corporate limits at the Tides Mill Stream to the northwest and just south of the Beachgate shopping center.

Intersection improvements are needed at the intersection of Rt. 205 and Colonial Avenue, the town's primary gateway to its commercial corridor, public beaches, and historic resort commercial area. The improvements should include beautification, lighting, and informational signage.

Overlay Districts

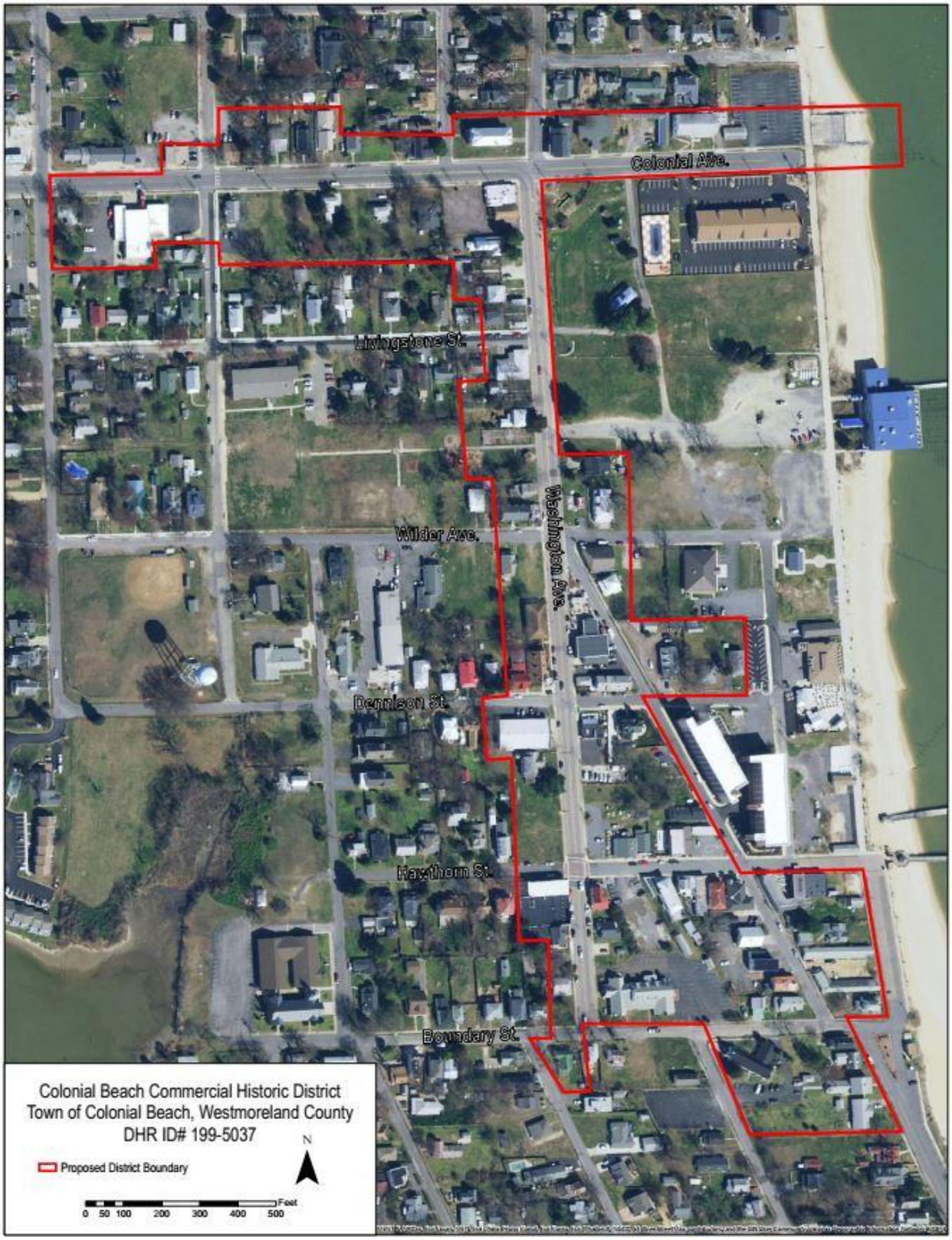
An especially useful zoning technique is the overlay zone. An overlay zone is simply a set of policies and regulations designed to implement additional land development regulations to protect a natural area, cultural resource, or commercial corridor. An overlay zone is placed on top of one or more zoning districts so that it runs along the edge of the resource rather than along property lines. It supplements the regulation in the base zone. Landowners must follow the regulation of both the base zone and the overlay zone.

Historic District

The preliminary Historic District Designation includes a relatively large area of land encompassing The Point and the older sections of the Central Area. These areas were chosen due to the presence of many historic structures and their relationship to the events and activities that helped to shape the Town of Colonial Beach. This preliminary district area has been identified merely as a starting point and may need to be modified as additional discussions take place within the community and with the Virginia Department of Historic Resources (VDHR).

Historical painting depicting the resort commercial character of the area in the 1930's & 40's. Image taken from "Colonial Beach Virginia Another Time... & Now" by Joyce Coates and Jackie Shinn

Commercial Historic District Map



Enterprise Zones

New or expanding businesses located on an Enterprise Zone parcel may qualify for an Enterprise Zone incentive grant if the establishment or expansion of the business creates jobs or requires a real-property investment. Established by the General Assembly in 1982, the Virginia Enterprise Zone Program is a partnership between the state and local governments to stimulate job creation and private investment within designated areas throughout Virginia. Currently, the Northern Neck has over 11,000 acres designated as enterprise zones. Enterprise Zones offer businesses a package of state and local incentives in the form of tax relief and grants, local regulatory flexibility, and local infrastructure development.

State Enterprise Zone Incentives

1) Job-creation grant
2) Real-property-investment grant

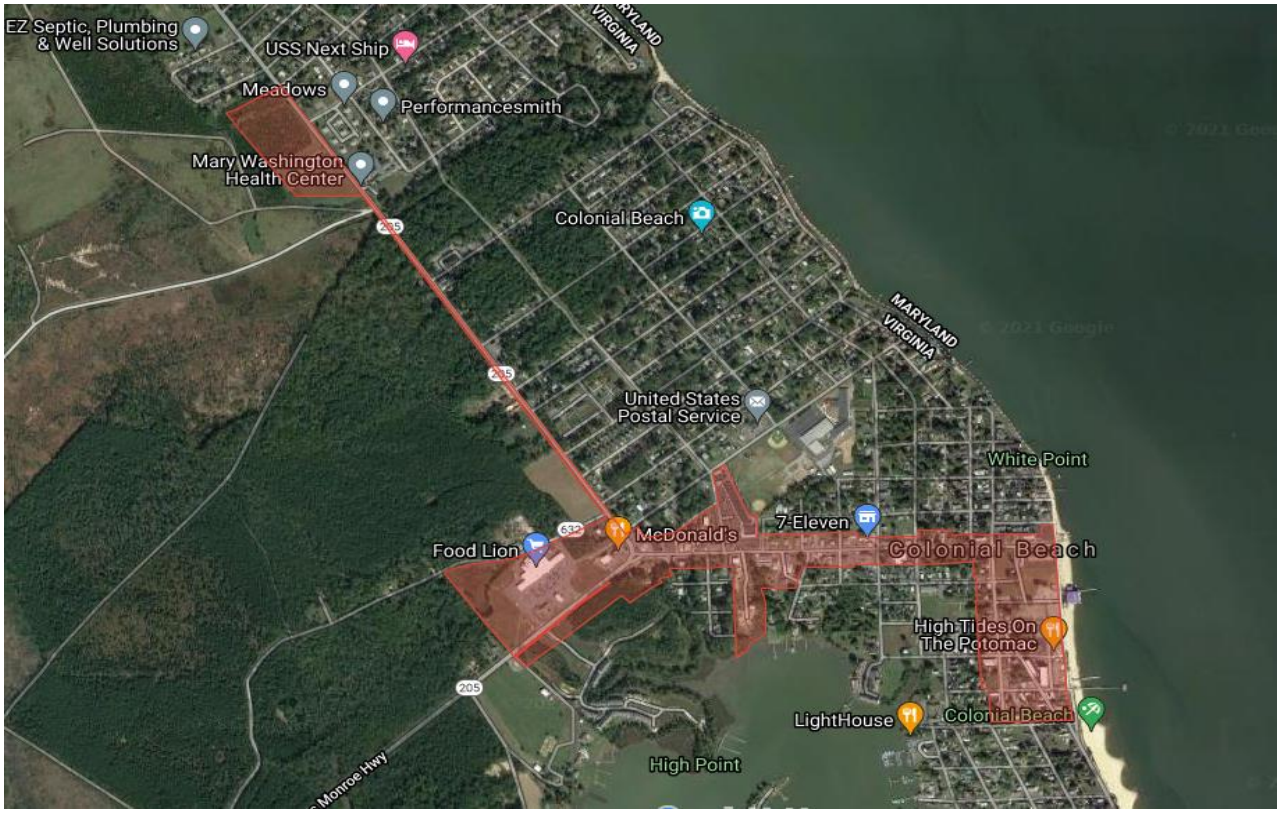
For up-to-date details, visit the Virginia Enterprise Zone (VEZ) page.

Local Enterprise Zone Incentives

1) All Enterprise Zone Parcels in the Northern Neck

Monetary incentive for new and expanding businesses that create 25 new full-time jobs, invest $250,000, and have an average annual wage that is at least 125% of the area average.

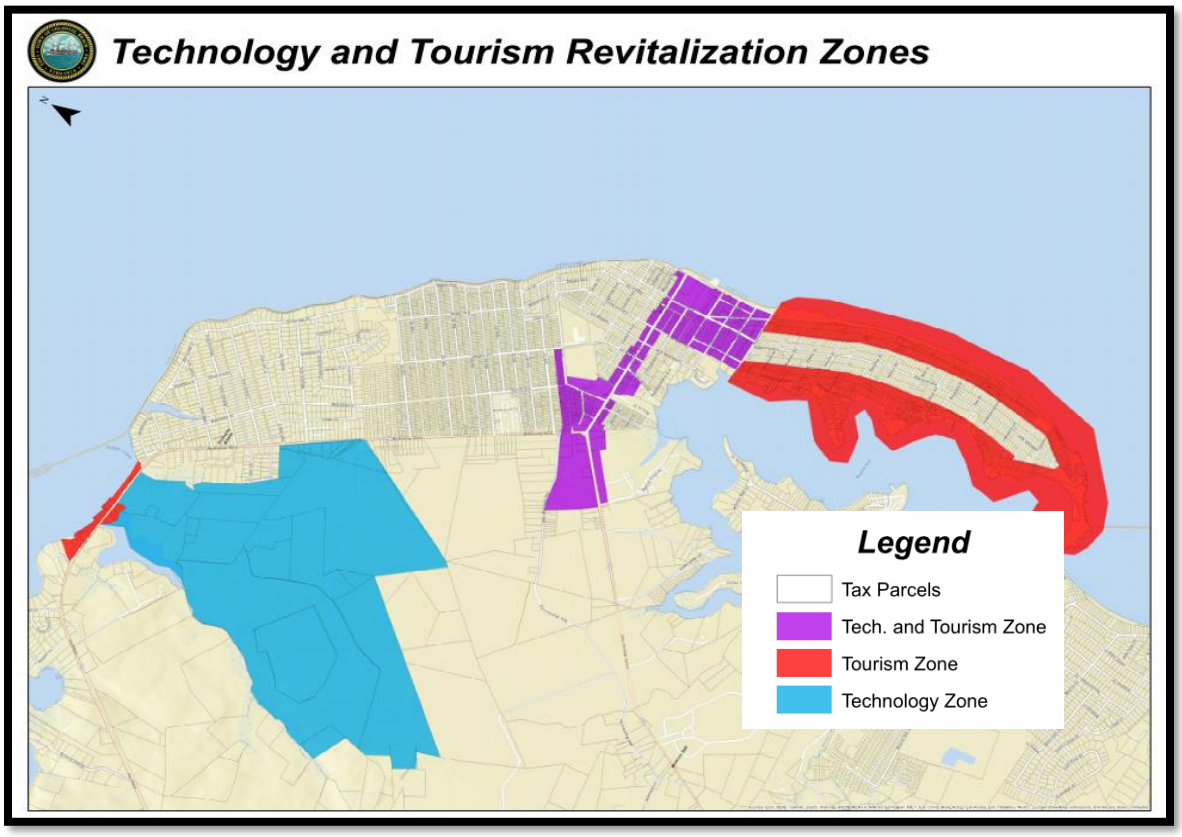
Enterprise Zone within Town of Colonial Beach Map



Source: http://www.northernneck.us/enterprise-zones

Technology & Tourism Zones

In 2021 the Town of Colonial Beach also adopted Economic Incentives for Tourism and Technology Zones. These zones are designed to incentivize job creation, growth, and encourage a longer tourism season for operation. Please see Town Code Chapter 23 for details.



The Northern Neck Planning District Commission (NNPDC) assisted the Town of Colonial Beach with its downtown revitalization effort. The Town received $747,000 in Community Development Block Grant (CDBG) funds from the Virginia Department of Housing and Community Development (DHCD). The project includes improvements to facades, landscaping, street furniture, streetlights, the installation of wayfaring signage, the development of a marketing website, the painting of five murals, and the creation of a revolving-loan program. The revolving loan program still exists and can assist existing and new businesses with capital expenses through a board approval. This fund is managed by the Northern Neck Planning District Commission.

Virginia Main Street Designation – Downtown Colonial Beach is an Affiliate Member

The Virginia Main Street program supports targeted revitalization efforts through a comprehensive, incremental approach to revitalization built around a community's unique heritage and attributes. Using local resources and initiatives, Main Street helps communities develop their own strategies to stimulate long-term economic growth and pride in the historic community center.

The Virginia Main Street provides no cost assistance to train, prepare, and support a community's revitalization efforts. Virginia Main Street is a valuable partner in a self-help program built on local commitment, initiative, and follow-through. Downtown Colonial Beach is an Affiliate Member which affords the benefits of the services of Main Street.

A possible concept for Colonial Avenue

Boardwalk

The Boardwalk Revitalization Grant provided enough funding to enhance the boardwalk and the areas around the Boardwalk along Hawthorne St. Citizens, as well as Tourists enjoy the beach area, multiple food areas as well as a firm boardwalk. The character of this area has been revitalized and continues to bring many to this redeveloped area, the town owns several parcels of land along the boardwalk and, as such, can play a key role in determining how the area redevelops.

In 2020, the Town of Colonial Beach signed a development agreement with Dodson Development Group to bring a 4-phase development to the undeveloped and vacated municipal property downtown.

Phase 1: Housing on the Old School Hill property above Washington Avenue (21 Units)

Phase 2: Restoration using the Historical Designation Tax Credits for the Chamber of Commerce, Old Westmoreland Bank, and School Board buildings into commercial & residential uses.

Phase 3: Development of new commercial and condo units along the boardwalk from the Town Pier to High Tides Restaurant and a vacant lot next to the restrooms.

Phase 4: A boutique hotel

Currently the Town has closed on Phase 1 and is scheduled to close on the remainder over the next year.

Recommendations and future needs

- Classic Shores, Meadows and Bluff Neighborhoods are in need of Public Open Space.
- The Colonial Beach School District plays an important role in the community for the children and parents, a plan to incorporate these students into the framework of the community through internships in businesses and government, Visual and Creative Art shows, and any other town possibilities
- Town owned undeveloped land should be developed according to the recommendations in the Housing Section.
- Recreational Facilities should be primarily developed in neighborhoods where there is non-existent green space
- Senior Facilities, senior housing and healthcare services are needed within the Town
- Develop a roadway to connect Colonial beach with the Meadows and other neighborhoods next to it.
- A concept plan for the Central area should be developed, and the undeveloped land currently owned by the town utilized to instigate development. The concept plan should address guidelines for architectural styles, building scale / massing, public open space, parking, and pedestrian mobility.
- Architectural styles, which complement the small-town charm of Colonial Beach, pedestrian accommodations, and plantings, are strongly preferred.
- Beautification, signage, and plantings are needed to enhance the Colonial Avenue entryway. The town should work with these individuals to identify desired improvements within the public right of way, develop a concept plan for the area, and pursue grant funding for its implementation.
- Consider implementing the November 2016 Revitalization and Beautification Ideas from the Colonial Beach Artists Guild (see Appendix J).
- A historic district designation should be sought and supported. A historic district is a geographical area recognized for its historical significance by formal listing on the Virginia Landmarks Register and the National Register of Historic Places.
- The town should work with Westmoreland County to annex land adjacent to Potomac Crossing that buffers Enterprise Zones.
- The Town and NGO's must work together to achieve many of the Goals of the Comprehensive Plan
- Additional overlay zones should be created to show the impact of recurrent flooding and storm surge flooding.
- Mapping will need to be done to find which areas of town are most impacted by flooding and overflow from water supply or wastewater facilities.
- The Town should consider adding language to its zoning ordinance that protects the areas of town that are projected to be under the most pressure from rising sea levels and increased storm surges, such as the new flood overlay zones, and supports resilience efforts in other areas of the Town.

Colonial Beach Plan of Action

Goal 1: To be an attractive Town to tourists, existing residents, and prospective residents

Objective 1A: Demonstrate a cohesive and collaborative beautification effort						
ID	**Actions/Activities**	**Process**	**Timeline**	**Funding**	**Responsible Party**	**Results**
1A1	Review, create and adopt architectural standards	Planning office review	0-1	Planning Office budget	Planning Department	Sustain the architectural style of each town neighborhood.
1A2	Work with state and federal government entities on revitalization efforts.	Apply for appropriate grants to accomplish the goal.	0-5	Grants (federal, state, and NGO)	Town, NGOs, and Grants Council	Secures funding, when available, to support continued revitalization implementation.
1A3	Collaborate with NGOs on the beautification of Colonial Ave.	Town and NGOs work to beautify the entrance and street of Colonial Avenue.	0-1	Main Street Funding as well as citizen support.	Town Public Works and citizens	Mutual acceptance of the implementation plan and coordination of efforts.
1A4	Schedule a yearly clean-up program in neighborhoods to encourage citizens in Town's beautification activities.	Publish date yearly for clean-up – citizens participate. Town offers a plan on how to remove unsafe structures and provides removal of waste.	Yearly	Budget plan includes use of trucks to collect debris.	Town, citizens, and NGOs	Citizens are supported in clean- up efforts of theirs and Town properties to help eliminate blight.
1A5	Expand directional signage additions from the revitalization program throughout the downtown area.	Review Revitalization Plan and utilize the same design as described.	0-3	Town resources and possible grants from Virginia NGOs.	Town and DCB	Visitors easily find the beach, boat ramp, marinas, historical and safety venues, using a consistent style of interactive signage.

Objective 1B: Promote the Town's rich history through revitalization and marketing						
ID	**Actions/Activities**	**Process**	**Timeline**	**Funding**	**Responsible Party**	**Results**
1B1	Develop a plan to secure historical designations for downtown, marinas and appropriate neighborhoods	Apply for designation and share goals with the community to increase financial support and involvement	0-6	Businesses and citizens	DCB and Town	Saves the remaining historical buildings and attracts developers and businesses to expand the downtown area
1B2	Display historical markers in town and on a community based interactive map	Town works with Chamber and History Museum to develop map and place designations	0-9	Government funding for Historical Designation	Town Chamber of Commerce and History Museum	Allows visitors and citizens to easily find key points of interest and activities
1B3	Develop a coordinated system of information sharing to promote events and activities between various Town, NGO and media websites	Coordinate the sources of information to assist residents and tourists	0-5	Increased collaboration and decision-making	Town and organization staff and volunteers	Provides consistent promotional messages easily found by citizens and visitors resulting in increased participation

Objective 1C: Develop the Town's center of activities anchored on the beach and marina areas						
ID	**Actions/Activities**	**Process**	**Timeline**	**Funding**	**Responsible Party**	**Results**
1C1	Encourage support for the health and wellness of the Chesapeake tributaries	Educate citizens on the Chesapeake Bay Act	Yearly	State and Chesapeake officials	Planning Office, Town Manager, and Finance Office	A cleaner river and bay increase demand for recreational activities and water attractions
1C2	Support and nurture maritime enterprises	Seek input from all fishing and Marina owners.	Yearly	Town resources	Town and NGOs	Expansion of existing businesses and attraction of new businesses
1C3	Create a forum of marina and boat owners to discuss ways to maintain and improve watershed ecosystems	Marina owners educate Town on needs of their businesses and help needed with new and existing ecosystems.	Yearly	Town Manager, Planning Office, and Finance Office	Town Manager, Planning Office, and Finance Office	Coordination of efforts and pooling of resources toward common goals
1C4	Develop plan to address shoreline erosion on both beach and bay shorelines	Seek guidance from the Virginia Institute of Marine Science to develop a plan for each neighborhood and implement one each year	0-7	Federal grants	Town Manager, Public Works, and outside engineer	Preservation of land and a cleaner environment for all
1C5	Expand Boardwalk onto Boundary Ave as recommended in Revitalization Grant design	Original Revitalization Plan called for the extension of the Boardwalk in front of Doc's Motor Court.	0-5	Grants – Revitalization	Town Manager and Public Works	Attracts new businesses and use by visitors and residents

Goal 2: To provide a safe, secure, supportive, and engaging environment for residents and businesses

Objective 2A: Recognize and support the importance of performance and visual arts						
ID	**Actions/Activities**	**Process**	**Timeline**	**Funding**	**Responsible Party**	**Results**
2A1	Coordinate the use of public facilities including the school campus for community events	Utilize facilities as well as involve students in town activities	0-3	Existing budgets and funds raised from events	School Board and Planning Office with NGOs	Expansion of arts programming to attract and increase participation at sites that can accommodate growth. School facilities demonstrate value to the entire community
2A2	Encourage collaboration between the Artist Community and local organizations to enhance promotional efforts	Involve businesses and Artist Community to highlight works as well as interest in the Arts	0-2	Volunteer and staff time	Chamber, businesses, and local artists	Attracting more locals and tourists to attend coordinated seasonal offerings that compliment rather than compete and extend the tourist season
2A3	Develop a plan to expand uses of Town Hill	Centralize the calendar and publicize availability and affordability for new events	0-3	Support of Town employees	Town and NGOs	Expanding use of a visible and accessible Town venue

Objective 2B: Promote healthy lifestyles through development of parks and recreational facilities/events						
ID	**Actions/Activities**	**Process**	**Timeline**	**Funding**	**Responsible Party**	**Results**
2B1	Establish a volunteer Parks and Recreation Council to maintain, develop, and initiate parks in neighborhoods	Coordinate between Town Officials and Parks Council the process to accomplish this responsibility and report yearly to the community	0-2	Town funding (for volunteer training) and Community Foundation	Appointed by Town Council and coordinated with Public works	Adoption of a recommendation from citizens on the record for over 20 years and sharing of responsibility for use and development of needed parks and greenspace throughout all neighborhoods.
2B2	Develop and link planned paths/trails for pedestrians and golf cart access.	Implementation of Previously created plans for paths not yet completed.	0-5	Recreational grants from federal government and state resources	Town Manager, Public Works, and Parks and Recreation Council	Creating a connection for ease of transportation through and linking of all neighborhoods and increasing access to activities and services
2B3	Respond to the need for enhanced and safer access to activities in Colonial Beach	Expansion of existing path system that eases reach to recreational and shopping areas of Town.	0-10	Government sources	Town Council, Town Manager, and citizens	Increasing safety and accessibility for all Town citizens and visitors

Objective 2C: Develop and link essential services to all residents and improve efficiency and coverage (Public Works, Fire, and Police Departments)						
ID	**Actions/Activities**	**Process**	**Timeline**	**Funding**	**Responsible Party**	**Results**
2C1	Request the Police Department to partner with residents to expand and promote the Neighborhood Watch Program	Police initiate citizen meeting to train and regulate program	0-1	Funds available for public safety	Police Department	Safer and more attractive neighborhoods
2C2	Improve and add sidewalks in downtown area and other neighborhoods	A yearly plan to enhance Or improve a section of the Town's sidewalks	0-9	Grants (federal or state) and Town budget	Public Works	Upgrading sidewalks creates safer footpaths for all and offers handicapped accessibility
2C3	Connect the Classic Shores and Meadows Neighborhoods with a roadway	Consult with VDOT and EMS on preferred Routes to enhance safety and emergency access.	0-1	State, County, and Town budgets	Public Works	Easier and faster access from emergency services to reach citizens when needed
2C4	Expand medical options available to citizenry	Collaboration with King George, Dahlgren, and Westmoreland County to attract medical services to area.	0-3	Grant programs	Town Manager and staff collaboration	Eliminates roadblocks to staying or moving into community and enhances health and safety offerings.

Objective 2D: Collaborate with local and county educational services to improve career and technical educational offerings						
ID	**Actions/Activities**	**Process**	**Timeline**	**Funding**	**Responsible Party**	**Results**
2D1	Provide programs to assist businesses in developing workforce training and apprentice opportunities	Recruit Programs offered by the County and Governor's Northern Neck Training Center to prepare upcoming workforce	0-8	Shared services, budgets, and local business	Superintendent, Town Manager, and Council Representative	Develop a skilled workforce and provides employment opportunities
2D2	Coordinate with existing resources in Montross & Westmoreland as well as area Universities to expand training opportunities in Town	Offer skill assessments and training programs to local students and residents giving them career choices other than academic	0-8	Shared services	Superintendent, Town Manager, and Council Representative	Keep a trained workforce in the community

Objective 2E: Develop and coordinate infrastructure improvements that support future housing needs						
ID	**Actions/Activities**	**Process**	**Timeline**	**Funding**	**Responsible Party**	**Results**
2E1	Expand housing stock for the workforce and aging population	Towns and businesses review the Housing Chapter to create plans for meeting the needs	0-6	VHDA Housing Tax Credit, Tax-Exempt Bond, and HUD community/ DHCD opportunity zone	Builders, developers, NGOs, and Town/County partnerships	Provides affordable housing to working families that wish to live in Colonial Beach increasing school population and spending in the community
2E2	Evaluate present home structures for reinvestment or destruction	Seek assistance from the Housing Authority on how to improve and develop each neighborhood	0-9	Builders, developers, and NGOs	Private owners and Town/County partnerships	Cuts down on blight and contributes to Town beautification efforts
2E3	Secure funding for redevelopment and revitalization efforts	Plan to develop downtown and make the area come alive with beautification and promotion	0-5	NH Preservation Funds and HUD partnerships	Builders, developers, and NGOs	Makes Town more attractive to potential residents, retains current residents, and provides population to attract businesses
2E4	Respond to increasing need for senior housing	Working with Bay- Aging, develop a plan to maintain the presence of seniors in the community	0-5	VDHA housing tax credit, Taxable Bond, and DBG grant	Builders, developers, and Town/County partnerships	Seniors needing to downsize would have an opportunity to remain in the community

Goal 3: To be a business-friendly environment that promotes growth and attracts quality businesses

Objective 3A: Increase regional collaboration for economic development						
ID	**Actions/Activities**	**Process**	**Timeline**	**Funding**	**Responsible Party**	**Results**
3A1	Establish an Economic Development Council to advise on needs of the business community to ensure retention and creation of new businesses	Business leaders are asked to develop an economic plan for the future based on data and on the needs of the community	0-5	U.S Chamber and public grants	Town Council appoints members; on recommendation of Planning Office & Economic Developer	Creating a plan for future economic development in the area assists in identifying resources, attracting new business, creating jobs, and adding to the tax base
3A2	Coordinate with County and Northern Neck to attract new business and grow existing businesses	Provide a messaging conduit to share information and provide services available for workers, new business owners	0-1	Grants and County/Town funding	Town Council, Westmoreland County, and the Northern Neck Planning District	Develops a joint effort to increase employment through recruitment of new businesses to the entire county
3A3	Create a plan to fill vacant land/buildings for new businesses	Collaborate with builders and NGOs to foster the expansion of businesses	0-2	Chamber, Town, and Economic Council	Town Manager, Finance Office, and NGOs	Creates employment opportunities, a stronger economy and increases tax base
3A4	Streamline processing of permits and licensing procedures	The Planning Office working with information from other towns, assists in this process	Ongoing	Planning Office and Chamber	Planning Office and Economic Council	Supports business development through a partnership process that is pro-business
3A5	Collaborate with the County for boundary adjustments or annexation of land within downtown and outer areas	Coordinate with the County on how to acquire land within or next to town boundaries to expand the tax base	0-6	Town with Westmorel and County	Town Council, Westmoreland County, and the Northern Neck Planning District	Increases tax base, resources, and services for residents

Objective 3B: Include resiliency best management practices in planning and development decisions						
ID	**Actions/Activities**	**Process**	**Timeline**	**Funding**	**Responsible Party**	**Results**
3B1	Incorporate low-impact development standards into the planning and permitting process	Town staff writes an ordinance requiring new developments to offset any increase in stormwater runoff rates	0-3		Town Staff, Town Council, and Planning Commission	Decreases negative externalities of new economic development. Lures developers that are interested in long-term, sustainable growth
3B2	Incentivize alternatives to impervious surfaces	Planning Commission should require or at least prefer permeable pavers in new parking areas	0-1		Planning Commission	Decreases stormwater runoff/. Helps the overall look of the town. Cheaper and requires less labor costs
3B3	Educate developers about low-impact development best management practices	Build an online low- impact development information portal with info about green infrastructure, alternatives to impervious surfaces, and funding sources	0-2		Town staff and Economic Council	Encourages developers to plan for the future and build long-term economic growth
3B4	Coordinate with the Low-Impact Development Center to build a vision for sustainable economic growth	Town planning contacts the LIDC about collaboration.	0-1		Town staff	The LIDC helped Warsaw's sustainable economic development program get off the ground

Goal 4: To be a community that is resilient to rising sea levels, storms, recurrent flooding, and other current and future threats

Objective 4A: Evaluate resiliency in current infrastructure						
ID	**Actions/Activities**	**Process**	**Timeline**	**Funding**	**Responsible Party**	**Results**
4A1	Evaluate stormwater systems adequacy	Analyze impact of large storm events on stormwater infiltration of wastewater system; inventory regions stormwater is exacerbating erosion; determine areas of high pollutant runoff	Ongoing		Planning Commission, Public Works, and Town staff	Understands the state of the current system and prepare to improve it to meet development goals
4A2	Map 5-, 10-, 50-, & 100-year flood plains, and areas with drainage issues	Evaluate zones vulnerable to recurrent flooding and large storm events	Ongoing		Town staff partnerships	Gains accurate insight into high risk areas, as well as how they will change with sea level rise
4A3	Evaluate the influence of sea level rise on the water supply, wastewater, and stormwater systems	Include infiltration rates, inflow and outflow, and an analysis of the interrelated nature of the systems	Ongoing		Planning Commission, Public Works, and Town staff	Prepares for changing environmental conditions while maintaining adequate service
4A4	Evaluate current water supply capacity and future demands	Incorporate future population projections and tourism goals in the water demands of the Town	Ongoing		Public Works and Planning Commission	Ensures capacity and storage is able to meet population growth and an increase in tourism

Objective 4B: Develop Town-wide resiliency documents						
ID	**Actions/Activities**	**Process**	**Timeline**	**Funding**	**Responsible Party**	**Results**
4B1	Develop a stormwater management plan	Address: 1. Specific management issues 2. Technical criteria in 4VAC50-60-40 through 4VAC50-60-80 3. Any implications pursuant to the Chesapeake Bay Preservation Act 4. Opportunities for financing through cost sharing or stormwater utility fees 5. Maintenance of the facilities 6. Future expansion if development exceeds anticipated level	Ongoing		Public Works and Planning Commission	Addresses stormwater management concerns with greater economy and efficiency
4B2	Develop a town-wide wastewater plan	Current plan describes the wastewater as "inadequate". Describe steps being taken to address wastewater. Identify areas in wastewater that are a concern. Describe steps being taken to address those concerns. Identify areas of wastewater expansion that can allow the community to grow and make a more resilient community. Work with Westmoreland County on areas that concern both the County and the Town	0-1	State and federal grants	Planning Commission, Public Works, NNPDC, Town staff, and Town/County partnership	Allows for economic development, protects recreational activities and promotes a healthy environment
4B3	Update the level of service standards (LOSS) for stormwater management	Evaluate the existing LOSS for water quantity and quality by storm event and drainage basin. Adopt an improved level of service standard if necessary.	Ongoing		Public Works, Town staff	Ensures adequate service is provided by the Town

4B4	Research FEMAs Community Rating System	Determine economic feasibility of Colonial Beach joining FEMAs CRS	0-1		Planning Commission and Economic Council	Saves homeowners money on their flood insurance by addressing potential flooding using FEMA criteria
4B5	Incorporate suggestions from the Regional Water Supply Plan into a community education program to help residents conserve water	Begin to incorporate practices like adding educational materials to billing statements and to any applicable online payment portal, including water conservation information on the Town website, or hosting water conservation booths at community events in the future	Ongoing			Save ratepayers money by using less water; Conserve the Town's water supply in the near future as resources are being saved for a potential infrastructure update in the long term
4B6	Incorporate the Northern Neck Hazard Mitigation Plan, 2017 Update into the Colonial Beach Comprehensive Plan	Use the information and best practices from the Hazard Mitigation Plan to address regional resiliency issues	Ongoing		Planning Commission, Town staff, Northern Neck Planning District Commission	The Hazard Mitigation Plan is incorporated into the Comprehensive plan to protect the public welfare and private property. Ensure Colonial Beach works regionally to address flooding, storm impacts, water quality, and erosion controls

Appendix

Appendix A: Adoption of the Comprehensive Plan

RESOLUTION #37-21, ADOPTION OF THE 2020-2030 COMPREHENSIVE PLAN

WHEREAS, Virginia Code Section 15.2-2230 requires that the Planning Commission review the Comprehensive Plan at least once every five years; and

WHEREAS, the Colonial Beach Planning Commission has reviewed the Colonial Beach Comprehensive Plan and conducted a public hearing on the proposed changes in accordance with Virginia Code Section 15.2-2225 and recommended approval of the 2020-2030 Comprehensive Plan to the Colonial Beach Town Council; and

WHEREAS, the Colonial Beach Town Council held a duly advertised public hearing on September 22, 2021 to hear comments on the 2020-2030 Comprehensive Plan in accordance with Virginia Code Section 15.2- 2226.

NOW THEREFORE BE IT RESOLVED, that the Town Council meeting in regular session, Wednesday September 22, 2021 hereby approves the Colonial Beach 2020-2030 Comprehensive Plan.

Upon motion made by Dr. Self Sullivan and seconded by Mr. Allison, Resolution #37-21, passed with a unanimous vote of council members present with the following amendment.

"Page 79:
Under "*Pedestrian / Bicycle Development Needs*" on page 79, **insert the following bullet** point:

• Pursue Transportation Alternative funding from the Virginia Department of Transportation to construct a walk/bike path to the Monroe Birthplace.

Page 80:
Retitle "*Town Pier*" section as "*Waterway Transit & Municipal Pier*"

Then **replace the existing paragraph** with the following language:

The Municipal Pier is currently an underutilized asset that is vitally important to the Town's history and could play an important role in the Town's future should its utility be maximized. The Town of Colonial Beach began as a resort town, with large vessels regularly docking at the Pier to unload large groups of tourists. Currently, the Municipal Pier cannot accommodate such vessels. The Pier is being considered for a potential redesign, and a preliminary design has been created and submitted to VDOT as part of Transportation Alternative Funding. Approval is pending. The purpose of the project is to repair and upgrade the "T" end of the Municipal Pier to accommodate boarding and disembarking of passengers for large water vessels on the Potomac River. Due to our location and status as the last deep-water port before Alexandria, the project will allow the Town to serve as an important mid-way stop on the Potomac River once again. This would increase tourism and provide alternative transportation options."

Aye Nay Aye Nay

Schick X Moncure X
Cabrey X Roberson X
Duggan X Self Sullivan X
Allison X

THIS IS TO CERTIFY THIS IS A TRUE COPY OF AN ORIGINAL RESOLUTION, approved by the Town Council at a Meeting of Council held Wednesday, September 22, 2021 at the Colonial Beach Town Center, with a quorum of Council being present.

_____
Heather Oliver, Town Clerk

Appendix B: Grant opportunities

Economic Vitality

Revitalization Planning Grants	
Funding Agency	Virginia Housing Development Authority
Grant Description	VHDA recognizes the significant and transformative effects of community revitalization and aims to support the creation of sound, livable, and connected communities. The Community Impact Grant offers local governments resources towards community revitalization and encourages the development of mixed-use/mixed-income properties, which often anchor community development efforts and spur economic growth.
Contact	Community Housing Office: 804-343-5735
Website	https://www.vhda.com/BusinessPartners/MFDevelopers/MFFinancing

CDBG Community Improvements Grants	
Funding Agency	Virginia Dept of Housing and Community Development
Grant Description	CDBG Community Improvement Grants are competitive grants, which aid eligible localities in implementing projects that will most directly impact the greatest needs of the community. There are five primary project types under this funding source: comprehensive community development, business district revitalization, housing, community facility (infrastructure) and community service facility.
Contact	Tamarah Holmes 804-371-7056 tamarah.holmes@dhcd.virginia.gov
Website	https://www.dhcd.virginia.gov/cdbg-community-improvement-grants

CDBG Planning Grants	
Funding Agency	Virginia Dept of Housing and Community Development
Grant Description	DHCD offers planning grants through the CDBG program to increase the potential for project success and impact. These grants aid in developing clearly articulated strategies for addressing a locality's greatest community development needs following meaningful citizen participation.
Contact	Tamarah Holmes 804-371-7056 tamarah.holmes@dhcd.virginia.gov
Website	https://www.dhcd.virginia.gov/cdbg-planning-grants

Economic Development Incentive Grant	
Funding Agency	Virginia Economic Department Partnership
Grant Description	The Virginia Economic Development Incentive Grant program (VEDIG) assists and encourages companies to invest and create new employment opportunities by locating significant headquarters, administrative, or service sector operations in Virginia. There must be an active and realistic competition between Virginia and another state or country for attracting the project.
Contact	Johan Salen 804-545-5654 jsalen@vedp.org
Website	https://www.vedp.org/incentive/virginia-economic-development-incentive-grant-vedig

Quality Natural and Physical Environment

Chesapeake Bay Stewardship Fund	
Funding Agency	National Fish and Wildlife Foundation
Grant Description	NFWF's Chesapeake Bay Stewardship Fund is dedicated to protecting the Bay by helping local communities clean up and restore their polluted rivers and streams. We advance cost-effective and creative solutions with financial and technical assistance. Working in partnership with government agencies and private corporations, the Chesapeake Bay Stewardship Fund awards $8 million to $12 million per year through two competitive grant programs; the Innovative Nutrient and Sediment Reduction Grant Program and the Small Watershed Grants Program. These programs benefit the communities, farms, habitats and wildlife of the Chesapeake Bay region.
Contact	Jake Reilly, Program Director, Chesapeake Bay jake.reilly@nfwf.org
Website	https://www.nfwf.org/chesapeake/Pages/home.aspx

Transportation Enhancement

Surface Transportation Block Grant	
Funding Agency	Virginia Department of Transportation
Grant Description	The Commonwealth Transportation Fund receives revenues from dedicated state and federal sources. The major state revenues are based on Virginia's official revenue forecast developed by the Department of Taxation. The Virginia Department of Transportation and the Virginia Department of Rail and Public Transportation estimate the federal revenues from the Federal Highway Administration and the Federal Transit Administration. Revenues from the fund and other dedicated money sources finance the Six-Year Financial Plan adopted by the CTB. The plan totals $36.9 billion for FY 2019-2024. The first priority for funding is maintaining existing infrastructure. This comes primarily from the financial plan's Highway Maintenance and Operating Fund.
Contact	**Fredericksburg District:** 540-899-4288 or 800-367-7623 87 Deacon Road Fredericksburg, Virginia 22405 Email: fredericksburginfo@vdot.virginia.gov
Website	https://www.virginiadot.org/projects/syip/virginia's_transportation_funding.asp

Quality Organization and Safe Community

Safe Routes to School	
Funding Agency	Virginia Department of Transportation
Grant Description	The Virginia Department of Transportation (VDOT) is committed to getting more kids walking and biking along safe routes. Our Safe Routes to School (SRTS) program has resources tailored to help your community start a SRTS program or nurture one that's already underway.
Contact	1-855-601-7787 or email at info@VirginiaSRTS.org.
Website	http://www.virginiadot.org/programs/ted_Rt2_school_pro.asp

Cultural and Recreational Opportunities

Virginia Recreational Trails Fund	
Funding Agency	Virginia Department of Conservation and Recreation
Grant Description	The Recreational Trails Program (RTP) is a federal matching reimbursement program for building and rehabilitating trails and trail related facilities. Funds may also be used to acquire land that is part of a trail development project. Federal Highway Administration and Fixing America's Surface Transportation (FAST) Act funds make the program possible and mandate allocations to non-motorized, diversified and motorized trail categories. Funding may be awarded to city, county, town or other government entities. Registered nonprofit groups partnered with a government body also are eligible. The Recreational Trails Program and Virginia Recreational Trails Program Advisory Committee steer project selections after a competitive call for applications.
Contact	Recreational Trails Program Virginia Department of Conservation and Recreation 600 East Main Street, 24th Floor Richmond, VA 23219
Website	https://www.dcr.virginia.gov/recreational-planning/trailfnd

Virginia Saltwater Recreational Fishing Development Fund	
Funding Agency	Virginia Marine Resources Commission
Grant Description	In July 1992, the Virginia General Assembly enacted legislation authorizing the implementation of a saltwater recreational fishing license. Funds collected by the Commonwealth of Virginia for the sale of those license are deposited in a special non-reverting fund and used to improve recreational fisheries in Virginia. Projects should contribute significantly to the management and enhancement of recreationally important species and enhance recreational fishing opportunities.
Contact	RFAB Grant Program 2600 Washington Avenue, Third Floor Newport News, VA 23607 FAX (757) 247-2002 E-mail: rob.o'reilly@mrc.virginia.gov
Website	https://mrc.virginia.gov/vsrfdf/application.shtm

Creative Communities Partnership Grants	
Funding Agency	Virginia Commission for the Arts
Grant Description	The Commission will match, up to $4,500, subject to funds available, the tax monies given by independent town, city, and county governments to arts organizations. The money, which does not include school arts budgets or arts programming by independent parks and recreation departments, may be granted either by a local arts commission/council or directly by the governing board.
Contact	Virginia Commission for the Arts Main Street Centre 600 East Main Street, Suite 330 Richmond, Virginia 23219 (804) 225-3132
Website	http://www.arts.virginia.gov/grants_local.html

Project Grants	
Funding Agency	Virginia Commission for the Arts
Grant Description	Project grant funds assist with the production of high quality creative arts activities, the creation of new work, operating support for new and emerging arts organizations, the expansion of successful arts programs, and services to the field. Projects can be in any artistic discipline and on any scale. There is a 1:1 required cash match for the grant. The Commission will not support the same project for more than three years.
Contact	Virginia Commission for the Arts Main Street Centre 600 East Main Street, Suite 330 Richmond, Virginia 23219 (804) 225-3132
Website	http://www.arts.virginia.gov/grants_projects.html

Appendix C: 2021 Town Council priorities

COMPLETED ITEMS FROM 2020 PRIORITIES WORK SESSION

CATEGORIES: 1 - Projects with built-in or contractual Deadlines, 2 - Project with the greatest urgency, 3 - Projects that have the greatest impact on the Town (CIP), 4 -Projects that require the least time and effort, 5 - Things that have to be done before others, 6 - All

Category						Project	Logistics
1st						Pier Lease Administration	Planning Dept.
1st	2nd					Town Manager employment review	Town Council
1st						End of boardwalk pedestrian plaza and improvements	Public Works/TM
	2nd	3rd		5th		New GIS mapping & Staff Hire ESRI	Public Works/TM
	2nd		4th			Memorials Advisory Commission and plaque, Res #30-18	Town Council
	2nd					Sign ordinance revisions and enforcement	Planning Commission
	2nd					Dominion Double Poles & Removal of old Verizon wires	Public Works/Dominion
	2nd					New Parking Meters	TM/Public Works
	2nd					Reestablish BZA	Planning Dept.
	2nd					Further Street Paving to VDOT Standards (5th Street)	Public Works
	2nd	3rd	4th			Formation of Parks & Recreational Citizen Committee	Town Council/TM
	2nd	3rd	4th			Amend Zoning Ordinance tree replacement requirements	Planning Commission
		3rd				Water Tower Refurbishment	Public Works
			4th			Amendments passed by Planning Commission Article 13	Planning Commission
			4th			Compensation for Legal Counsel Resolution	Legal/TC
			4th			Escalate Tall Grass Fines for Chronic Offenders/Annual Notice	Planning Dept.
			4th			Uniform Procurement Options/Hi-Vis	Public Works/TM
					6th	Itinerant merchants (in Zoning Ordinance)	Town Manager

Other Accomplishments from 2020:

Staff Changes
CFO
Planning Director
Code Enforcement
Police Officers x4
Treasury staff x2
Operations Manager PW x2
Public Works x10
GIS Technician
HR
Park Attendants x3

Procurement policy (P-Card)
Atlantic Broadband at Public Works
HVAC System Replacement at School, CIP Funds
No Wake Zone
Pursue of outstanding bills
Library & Chamber Leases
Revisit current health care benefit package (family rates extremely high)
Municipal Clerk Training/Transition
Redefine outdoor stage to enhance property maintenance
Review Chesapeake Bay Overlay District
Clarify Setback requirements for decks
Water/Sewer reserve fund balance
Pedestrian plaza and Boardwalk continued improvements (street furniture)
Cityworks procurement for Work Order Request system

CATEGORIES: 1 - Projects with built-in or contractual Deadlines, 2 - Project with the greatest urgency, 3 - Projects that have the greatest impact on the Town (CIP), 4 - Projects that require the least time and effort, 5 - Things that have to be done before others, 6 - All Other

2021 PRIORITIES MOVED TO ADMINISTRATION

Category	Project	Logistics
Admin	Economic Development - Create business incentives package	DCB/EDC/TM
Admin	Colonial Avenue landscape improvements	DCB/TM
Admin	CARES Act Monies from Westmoreland	Finance
Admin	Salary review for CBPD and Staff	HR/TM/PD
Admin	Garbage and Jet Truck Replacement	Public Works
Admin	Waste Water Treatment Plant Tower Refurbishment	Public Works
Admin	Torrey Smith Rec Park Maintenance (Water, Cameras, Bathhouse)	Public Works/TM/P&R
Admin	Rumble strips/valleys/medians with landscaping/trashcan replacment	PW/PZ
Admin	AT&T/T-MOBILE/Alt Provider enhanced service in town	TC/TM
Admin	Red Cross Site Verification	TM
Admin	CIP Asset & Equipment Replacement Schedules, SOP, work scheduling	TM
Admin	Emergency Preparedness Plan & EOC Plan Upgrade	TM
Admin	Shoreline Protection Maryland & Virginia Ave.	TM
Admin	ADA Compliance at Town Hall	TM
Admin	Social Services expansion to office in CB	TM
Admin	Social Media marketing (Wanderlove grant and pursuit of others)	TM
Admin	COVID-19 Preparedness and Response Plan (Res 37-20)	TM
Admin	Palm Tree Donations/Program	TM
Admin	Virginia Economic Development Partnership/West Co. Enterprise Zone	TM
Admin	Town of Montross joint marketing	TM/EDC
Admin	Virginia Economic Development Partnership/West. Co Enterprise Zone	TM/EDC
Admin	Delinquent Tax Sale	TM/Finance
Admin	Audit Report on Time 2021	TM/Finance
Admin	Debt Consolidation	TM/Finance
Admin	Quarterly financial reporting	TM/Finance
Admin	Social Media and Internet Personal Policy	TM/HR
Admin	Monthly HR Classes for Employees	TM/HR
Admin	Job Description & Evaluation Implementation	TM/HR
Admin	Professional Development for Staff	TM/HR
Admin	Procedure Manuals for Departments	TM/HR
Admin	LOVE Golf Cart Improvements	TM/NGO
Admin	Improve parking signage around town/wayfaring project	TM/Planning
Admin	Professional Utility Services Engineering Study (PER Study)	TM/PW
Admin	Dedication of remainder unspent funds 2018-19 (100K)	TM/TC/F
Admin	FOIA Staff Training	Town Clerk
Admin	Municipal Clerk Certification	Town Clerk
Admin	Improved document storage operations	Town Clerk
Admin	CBPS Internship Program	Town Clerk

2021 COLONIAL BEACH TOWN COUNCIL PRIORITIES

CATEGORIES: 1 - Projects with built-in or contractual Deadlines, 2 - Project with the greatest urgency, 3 - Projects that have the greatest impact on the Town (CIP), 4 - Projects that require the least time and effort, 5 - Things that have to be done before others, 6 - All Other

1s	2s	3s	4s	5s	6s	Project	Logistics
1	2	3		5		Evaluation of Central Drainage Area	PW
1	2	3		5		Comprehensive parking plan for the town	Public Works/TM/Planning Dept.
1	2	3		5		Robin Grove living shoreline implementation	Planning Dept./TM
1	2	3				Town Manager Hire	TC
1	2			5		Water Meter Cost Analysis	Public Works/Finance
1	2					Relocation of Chamber/Tourism/Radio Station/Foundation	TM/TC
1		3	4	5		Historic Designation for Downtown	DCB/PZ
1		3		5		Extend Dwight to connect to the Meadows	PZ/PW
1						Comprehensive Plan Update Review & Adoption	Planning Dept.
1						Census 2020 Information for Town	Town Manager
1						Green Street Grant 1st Street	PW/TM/PZ
1						School Board to Lincoln Ave	SB
1						Dodson Development closings and follow through	TM/PZ
1						Path connection to Monroe's Birthplace	TM/TC/PZ
1				5		Park Rules & Signage (Town Ordinance) New Parks & Recreation Dept.	Parks and Rec/Legal
	2	3	4			Dog Park Implementation at Robin Grove	CBRD/TM
	2	3	4			Install Parking Lot at Klotz Building	Public Works
	2	3	4			Remove blight along Colonial Avenue (CURB APPEAL/TREES)	Planning Dept.
	2	3		5		Comprehensive storm water management plan for sectors across town	PW/PZ/PC
	2	3				Business License Tax Improvements	TM/TC/Finance
	2	3				Town Code rentals tax program	CFO/Town Manager
	2	3				Planning for Future Development of Classic Shores	Planning Dept./TM
	2	3				Castlewood Beautification	PR/PW
	2	3				Bikepath Greenway Park	PR/PZ/RAFT
	2	3				Parks in Northside of Town	TM/PZ/TC
	2			5		Use of 700 Colonial Ave.	Town Manager
	2					Beach Ambassador Program/Policies	PR
	2					Police Department Retention	PD
		3	4			Town Pier Replacement/Refurbishment	TM/PW
		3	4			RAFT Committee Formation/Function	TC/PZ
		3		5		Review strategies for public land/Parks and Recreation	PR/PZ

2021 COLONIAL BEACH TOWN COUNCIL PRIORITIES

CATEGORIES: 1 - Projects with built-in or contractual Deadlines, 2 - Project with the greatest urgency, 3 - Projects that have the greatest impact on the Town (CIP), 4 - Projects that require the least time and effort, 5 - Things that have to be done before others, 6 - All Other

		3				Eleanor Park - Improve Function & Revenue/Grant or Conservation	Town Manager/Planning Dept.
		3				Beach Fortification	Public Works
		3				Support for Economic Development Hire/Director of DCB	DCB/TC
		3				Volunteer Rescue Squad Facility Support	Town Council
		3				Land acquisition options	TM/TC/PZ
			4			Qualified Technology and Tourism Zones/Tax Incentive Code Sec. 23.88-94	TC/TM/LEGAL
			4			Arts and Culture District Code Ch. 24	TC/TM/LEGAL
			4			Boardwalk shade trees/landscaping/trashcan replacement	PW/DCB
			4			Lennar Property Group outreach (Potomac Crossing)	TM/TC
				5		Market Analysis-Forming a catalyst strategy	DCB/TC/PZ
					6	Main Street designation	DCB/TM
					6	New community center w/indoor stage and event space	Town Council
					6	New Municipal facility w/police station	Town Council
					6	Full review of Town Code & Repagination	Town Clerk
					6	Investment alternatives for "Yacht Club" monies presentation	TM/Finance
					6	Historic Desgination for Point and Central Areas	DCB/PZ
					6	SBA satelitte office/RCC	TC/COC/TM

Appendix D: Land Use Diagnostic Questionnaire

Town of Colonial Beach, Virginia

Land Use Diagnostic Questionnaire
Town Council/Planning Commission Survey

The questions appearing below represent the initial step in the review and critique of the Colonial Beach Land Use Chapter of the Comprehensive plan. The questions are designed to gain insight about the Colonial Beach comprehensive plan from persons who are familiar with the plan and its content.

Accordingly, key town staff as well as all members of the Colonial Beach Town Council, the Colonial Beach Planning Commission, the Colonial Beach BZA, and the Downtown Colonial Beach organization are being asked to respond to the questions featured on this instrument.

TOWN COUNCIL/PLANNING COMMISSION

1. As you consider the current Colonial Beach comprehensive plan, what aspects of the plan have worked well over the past three years?

2. What aspects of the Colonial Beach town plan have not worked well over the past three years?

3. As you consider the current Colonial Beach comp plan, what are its top 3 strengths?

4. As you consider the current Colonial Beach comp plan, what are its top 3 weaknesses?

5. What are the top 3 land use issues currently facing Colonial Beach?

6. Thinking long term, what land use issues will dominate as opportunities in Colonial Beach 5 years from now?

7. In like fashion, what land use issues will dominate as threats in Colonial Beach 5 years from now?

8. As you consider the current goals and policies featured in the Colonial Beach plan (pages 3-1 to 3-16), are any changes, adjustments, additions or deletions needed? Please be specific with your response.

9. As you consider the future land use action plan discussed in the Colonial Beach plan (5-19 to 5-23), are any changes, adjustments, additions or deletions needed? Please be specific with your response.

10. As you consider the future land use map featured on p. 4-5 are any changes or adjustments need? Please be specific with your response

11. As you consider the future transportation and circulation action plan featured in the Colonial Beach plan (page 4-11), are any changes, adjustments, additions or deletions needed? Please be specific with your response.

12. In like fashion, are any changes, adjustments, additions or deletions needed with regard to the Historic & Enterprise Zone Districts in the Colonial Beach comp plan (page 4-9)? Please be specific with your response.

<u>Other Comments:</u>

Appendix E: Planning Commission/Council Responses

Planning Commission/Council Responses

What aspects of the Colonial Beach town plan have not worked well over the past three years?

- Statistical information not used by all organizations as well as by Town to put to use for more effective planning. (Needs updating was echoed by many on Commission)
- Use info on Neighborhoods to plan parks and recreation for all areas, (see land use recommendation as well for each neighborhood.) and connect needs for all areas to statistical reports in Chapter I.
- Clarification for Effective Enterprise Zone to all bodies and organizations to assist in economic development.
- Data and recommendations does not seem to be a source of guidance for the Town Council.
- Lack of Dedication to locate funding sources to avoid financial stress.
- The lack of local culture is not taken into consideration.
- There should be more cross referencing made to connect all ideas/concepts.
- Presentation of the document is not as clear as it should be to use more efficiently and effectively!
- Environmental issues do not seem to be addressed within the plan.
- Shoreline refurbishment has been negligible, develop new strategic plan for shoreline redevelopment.
- Public Relations plan set up to inform all of the Comprehensive Plan an of the future needs for the Town (Identified by many in survey)
- Most of the Plan is still unrealized! (Echoed many times)
- Property sales
- Bring new business to Town, retail, services. medical
- Appearance of town
- Town infrastructure needs more attention and continual updating

As you consider the current Colonial Beach comp plan, what are its top 3 strengths?

- Chapter 4 defines for the people the many land pieces/neighborhoods
- Chapter 5 helps future concepts to be enacted, should also define special non-profits in Town to assist in the development of multiple contributing solutions
- Plan serves as a beginning for all people's vision for Colonial Beach and what priorities needed to develop. (Multiple commissioners echoed this issue)
- Maps and exhibits to demonstrate connections between different facilities/services/planning areas.
- Most of the comments have not changed – enact the comp Plan!
- Focuses on green space, environmental issues and design guidelines.
  Lack of concentration on Economic Development Issues. (There seemed to be an echo of this as great need)

As you consider the current Colonial Beach comp plan, what are its top 3 weaknesses?

- Effectiveness of the Plan is minimal and not readable to citizens as well as organized.
- Clarifications of how Non-Profits such as, Downtown Colonial Beach, Chamber, and Foundation could assist in the development of many areas of the Town according to Comprehensive Plan
- Plan should not just be there but explained to people and develop more interest in assisting the Town (leading non-profits –Chamber, DCB, Foundation should be using plan to develop ideas, helping to meet all the expectations of citizens) as well as the Vision.
- Lack of commitment and knowledge of the plan
- Vision statement is too long and not well defined!
- School Expansion Plans are not made as to future needs and changes
- Readability of plan
- Active green space development
- Land development needs not supported by infrastructure needs.
- Disagreement between leadership/management on funding projects.
- Plans for Economic Growth
- Serve as guide for Council/ Town Manager more involved in plan

What are the top 3 land use issues currently facing Colonial Beach?

- Develop strategic plan for Height, bulk, and mass land use plan for each neighborhood
- Strategically plan for underdeveloped land for neighborhoods and property belonging to Town and Westmorland County property within town corporate boundaries of CB; town property along Colonial Ave (Refuse) needs overhaul or possibly selling for economic use.
- Develop strategic plan for shoreline Protection within the Boundaries of CB
- Multiple pieces of land can't be developed until infrastructures are developed.
- Crumbling buildings, abandoned buildings lack of recognition and funding for Historical landmarks
- Disagreement on party of Leadership/Management on how to fund these projects.
- Economic development along Colonial Ave. (Idea runs throughout responses)
- Recreation Facilities/ Walk, Bike, Golf Cart ability"
- Improve Beach & Resort Area
- Provide adequate and quality workforce housing and other housing
- Create zoning map to simulate sustainable economic development/growth
- Sales / Infrastructure / Corrosion

Thinking long term, what land use issues will dominate as opportunities in Colonial Beach 5 years from now?

- Annex property belonging to Westmorland County within town corporate boundaries of CB and Monroe Birthplace(his family originally developed town
- Develop conceptual plan for properties in Neighborhood's, e.g. Meadows, Potomac Crossings, etc.

- Alternative energy will need to be developed to meet the demands in future years
- Shoreline development plans need to be developed/maintained
- Economic development is a great need and eventually we will need additional parking expectations; develop property into revenue generating opportunities for recreation and event planning
- Tourist attractions along Boardwalk and newly developed land areas
- General improvement to infrastructure and town aesthetics
- Attract developers that work with the Town to provide the town with affordable housing; attract families to attend schools, pay taxes, provide a workforce for service needs in town as well as other businesses
- Identify public/private partnerships
- Increasing housing values and sales through infrastructure improvements and increasing park/recreational opportunities
- Be mindful of the Dahlgren Commercial & job development – mindful of Corridor being developed to connect Dahlgren to Fort AP Hill.
- More development on waterfront

In like fashion, what land use issues will dominate as threats in Colonial Beach 5 years from now?

- Energy Issues need to be addressed for future land expansion.
- Unification and Consensus decision making on the part of Town Council and other organizations to benefit all over improvement of town.
- Reorganization of how the town proceeds with development of land, activities and funding of multiple projects for town.
- Trash and maintenance of existing buildings/streets
- Affordable Housing; lack of workforce housing
- Shoreline erosion, beaches, and natural areas that attract tourism
- Enterprise Zone expiration, economic development
- Decreasing open space that may ultimately decrease housing values; lack of public recreational facilities
- Inability to plan and focus due to day to day dealing with crumbling infrastructure crises
- Erosion of beach

As you consider the current goals and policies featured in the Colonial Beach plan (pages 3-1 to 3-16), are any changes, adjustments, additions or deletions needed? Please be specific with your response.

- Vision for Town needs to be solidified so all members of the Town know it and understand it(3-6); mainstream this Vision to all citizens so all know it
- The tax base should be studied more by all to include income study for town needs; property taxes are not the only source of income, e.g. income from events, permits for use of Town

- Property, and business development for present businesses in town including restaurants.(#4-Economic vitality)
- Section on Quality Natural and Environment issues need much more definition and strategies that all groups would follow and develop jointly.
- More effective compliance with Neighborhood strategies to maintain the Height, Bulk, and Mass for each area. (Develop ordinances for neighborhoods)
- Re-evaluate transportation section in light of present development and future needs of what tasks/strategies have been done and include Bay Aging Transport so more seniors understand and can utilize more often. (Cabs, Trolley etc.) (increased to other areas outside of town)
- Give more consideration to areas not having open space or parks as of today and strategically plan for them in the future(3-13)
- Include all Arts in the development of the future CB (3:14-15)
- Annual reports should be sent to Citizens by all Public Services, town departments, schools (Annual Record of test scores at end of years as well as a record of numbers (student count, graduation count, etc.) to avoid the criticisms heard so often.
- Expand the Telecommunications systems even more than presently done.(3-16)
- Housing Chapter records the needs for Senior Care; Emergency Care should exist within a closer area; revise this chapter back to its original format as passed by PC
- Emphasis should be placed on Economic development especially for non-seasonal employers
- Goals and objectives as written are good but needs updated priorities
- Remove meter installations; consult Public Works
- Clarify role of Rescue Squad, plan for eventual paid staff/services and coordination with the county
- No changes made till authorized by TC
- Actions should be measurable

As you consider the future land use action plan discussed in the Colonial Beach plan (5-19 to 5-23), are any changes, adjustments, additions or deletions needed? Please be specific with your response.

- Update accomplishments and steps taken so that which is still needed can be accomplished
- Specifics of School need updating.(5-2)
- Decide which things in plan are realistic for the town
- Some of the Neighborhood statements need revision according to current status keeping in mind conditions and needs of each area. (see above land use recommendations)
- Address the PUD but include recommendations for future land use of Potomac Crossing. (5-2 to 5-4); suggest area be integrated area with stores, homes of different styles and types.
- Maritime is a major area of our economy and needs more attention in development and inclusiveness in economic discussions. (5-4)

- Main Street Designation would assist the Beach in Economic Vitality and should include the Downtown Colonial Beach in developing many conditions for Revitalization; update what has been accomplished by Revitalization
- Prioritized items for CIP
- Multiple sentences and areas in section 5; need to be updated as to present accomplishments(Robin Schick notes all of these for this question)
- Update Concept Plan with current pictures and explanation of what Revitalization has accomplished and what needs we have for the future(5-12, 4-14)
- **Add** "As Town Staff and Council changes all new persons should be educated on this action plan and the community's vision as to provide seamless forward momentum on accomplishing these goal
- Identify new Resources Requirements & any accomplished items should be added as appropriate

As you consider the future land use map featured on p. 4-5 are any changes or adjustments need? Please be specific with your response

- The map at the present time is good but needs to be made more public!
- New maps should be entered into comp. plan.
- Develop plan with Westmoreland County for development of Commercial along Rt. 205 on outside of road and along "Potomac Crossing" along 205
- Find grants to fulfill needs of improvements
- Establish a Recreation Committee/ Dept. of Parks & Recreation
- Revise ordinances to eliminate ambiguous or contradictory language
- Make repairs to dilapidated buildings /Improve aesthetics
- Look at zoning for each neighborhood and see that the zoning is in need of revision
- Needs updating with actual accomplishments and steps taken so that what is still needed to be done can be identified
- Needs to be filtered to see which pieces are realistic for our town to accomplish

As you consider the future land use map featured on p. 4-5 are any changes or adjustments need? Please be specific with your response

- Map is confusing and should be done in color variations(4-11)
- School needs to be relocated(4-11) on map
- Road Ways need updating since paving has taken place.
- Revise Public Open Space in all areas/neighborhoods
- Develop awareness of present transport and increase to Dahlgren Area
- Follow recommendations in plan such as one way for Monroe Bay Ave and Irving Ave.
- Open space in all neighborhoods designated
- Potomac Crossings re-evaluated/rezoned
- Develop plan with Westmoreland County for development of commercial along Rte. 205 on outside of road and along section of "Potomac Crossing" along 205
- Improvement of Golf Cart Path and define by color the crossing path at First Street

- Identify what to do with the VDOT dead end shoreline properties

As you consider the future transportation and circulation action plan featured in the Colonial Beach plan (page 4-11), are any changes, adjustments, additions or deletions needed? Please be specific with your response.

- Map is confusing and should be done in color variations(4-11)
- School needs to be relocated(4-11)
- Road Way description in CP need updating since paving has taken place.
- Make appropriate changes such as adding Monroe Birthplace and Monroe Winery to Trolley Stops
- Write better description of Bikeways in plan
- Annex Monroe Birthplace to town/add bike and golf path
- Designation of Historic District/Mark Historical homes throughout town
- Include business incentive programs, research other benefits to add businesses

In like fashion, are any changes, adjustments, additions or deletions needed with regard to the Historic & Enterprise Zone Districts in the Colonial Beach comp plan (page 4-9)? Please be specific with your response.

- A lot more emphasis on Historical Preservation and the Enterprise Zone needs to be developed, clarified and explained to the public for more economic Improvements in town.
- An Ad-hoc commission for funding and grant writing for future projects should be formed with Town Leadership to provide more effective planning for this are
- Designation of Historic District/Mark Historical homes throughout town
- Include business incentive programs, research other benefits to add businesses

Appendix F: Chamber Responses to Planning Commission Survey

Survey Responses: Planning Commission Survey: from Chamber of Commerce

(All comments have company/organization and contributor names redacted. Certainly some are easily identified but…I did try)

What challenges you think you will be facing in the next few years from a business perspective and any ways you are looking to change or adapt your own business to meet these challenges.

Lobby for a cannabis distribution plaza in Virginia: C.B. first.

Dissolve the Finance Department. Totally Ineffective.

I am very happy running my business in Colinial Beach

Hoping the overall economy, including interest rates will continue to be supportive of people buying second homes (my most important market).

Find reasons to come to CB in the off-season. Perhaps business/association meetings…this will require available hotel beds.

Downtown parking east to find and affordable

More internet presence

Promote and sell empty town-owned buildings…give incentive to the buyers

Reinforce town staff that are good at customer relations…train others

The town should **co-sponsor** with the Chamber and other organizations. Wave fees for events that are non-profit, especially if this brings visitors to the town. Have funding for events come from vendors rather than the Chamber (so vendor fee includes town fee and Chamber benefit)

I am not a business owner but: Infrastructure…infrastructure…infrastructure

Fees on/for Town Hill. Why do events occur? What IS their purpose…tourism or town benefit?

The Town should list the properties it owns. Give new businesses a tax break. Allow new businesses a break on Chamber fees for first year.

Renovate the town's old buildings or sell to those interested in renovation. More new businesses in town without having to jump thru so many hoops to get established.

Looking for a local market to sell our products.

Fees charged for holding events on Town Hill seem excessive. We are re-evaluating the events we do.

Other Suggestions:

Create a town program to refurbish open, closed and run-down buildings thru tax incentives? Rebates on taxes? Look at what the town might do to make the ugly buildings that are closed and boarded up in the town center open and part of the community? Tourists do not spend money on boarded up old buildings.

Too many empty buildings on Colonial Avenue…Pop-ups???

Smoke shop; Vape Shop, Hookah bar?

Create an Office of Economic Development. Hire and train a grant writer. Evaluate options for annexing parts of the county especially to include Monroe's Birthplace.

Appendix G: Summary of Public Workshop

"DOWNTOWN COLONIAL BEACH IS THE VIBRANT HUB OF OUR HISTORIC AND CULTURALLY-RICH BEACH COMMUNITY REFLECTING AND SUSTAINING THE DOWNTOWN'S QUAINT, SMALL TOWN AND COLORFUL HISTORICAL CHARACTER "

I. Business and Recreation Content:

--Reasonable variety of relevant stores, restaurants, hotels, and services including ample support of beach tourism
--Frequent and interesting Town Hill, Boardwalk and Coffee House events
--Water-based tours, dinner cruises, and fishing available
--Historic District certification to encourage developer, business and property owner investment in historical restorations of eligible properties.
--All historic buildings plaqued, with tours available as feasible
--Town program to encourage new businesses in Downtown to reference town Design Guidelines for their facades
--Exterior design downtown that would blend with historic buildings and that would contribute to the quaint, small town and historic character of the town, especially empty buildings
--Competitive business tax structure (Not sure what this means. Does it mean offering businesses every available tax incentive to encourage investment in the downtown?)
--Venues for children and youth to enjoy the downtown

II. Appearance

--Buildings and fences clean/painted, grass and trees trimmed
--Appropriate and attractive signage, lighting, trash cans, and benches
--Town regulations/practices/displays reinforce positive appearance
--Beach clean with attractive supporting facilities
--Sufficient and tasteful public art
--Abundant decorative trees/bushes on main avenues to enhance appearance and create shade to make shopping downtown more appealing and provide relief from the 89 degree average summer temperatures.
--Creatively showcasing the town's history

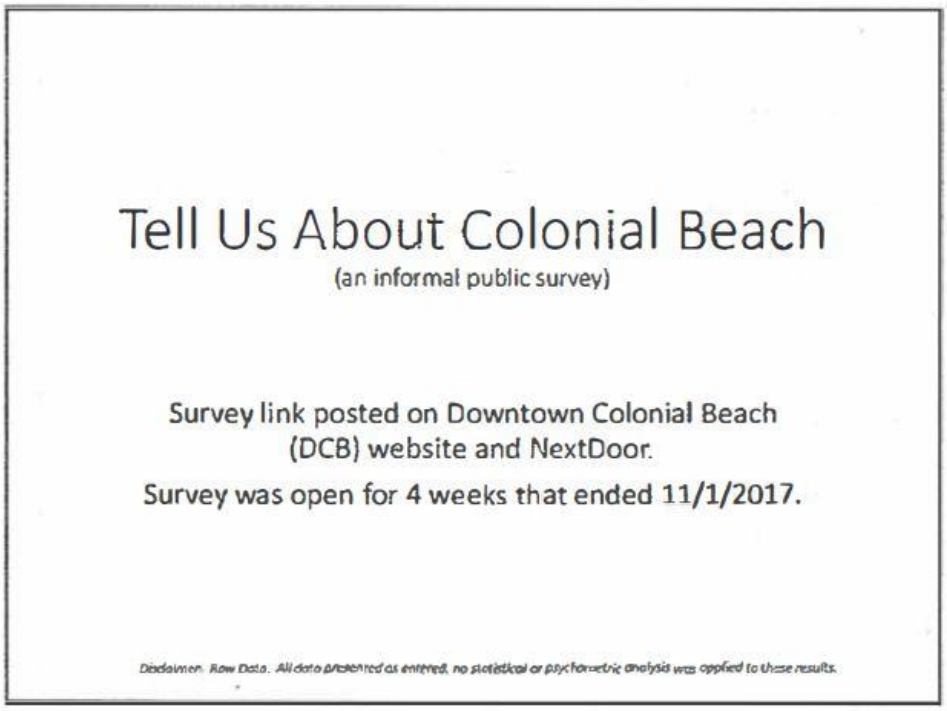
III. Functionality

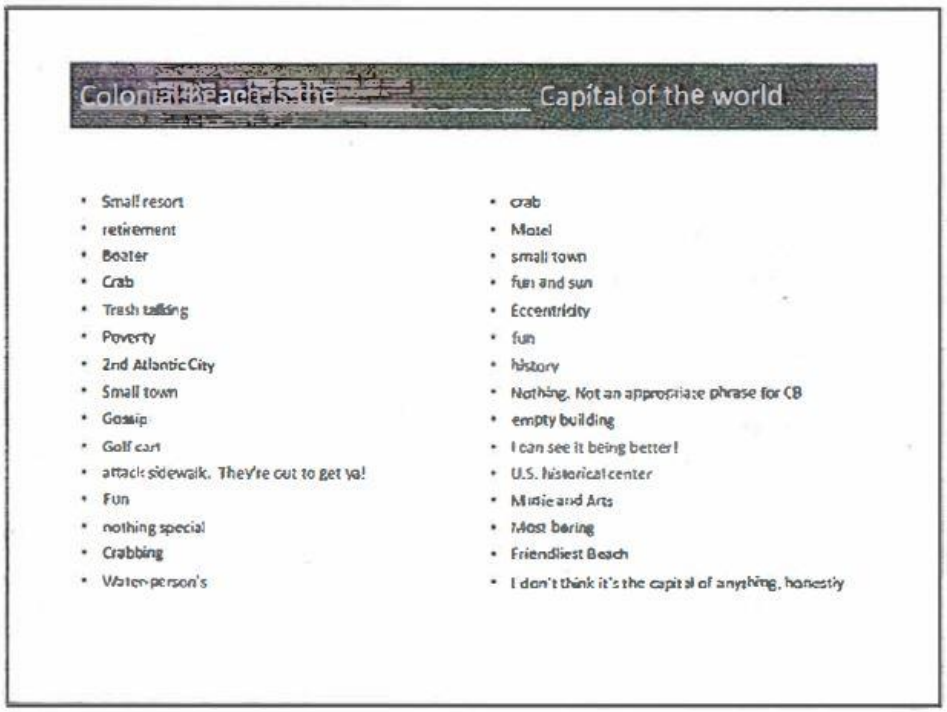
--Clean streets, safe/accessible sidewalks, and filled potholes
--Adequate parking
--Water/sewers/storm sewers in repair, no puddles
--Underground utility lines
--Convenient Internet access throughout
--Handicapped accessibility for all town businesses enabled through grants, and used as a marketing strategy to attract another niche market.

AS A RESULT OF THE ABOVE IN ITS DOWNTOWN AND COMMERCIAL DISTRICTS, COLONIAL BEACH IS RECOGNIZED AS BEING *THE* GATEWAY TO THE NOTHERN NECK AND A GEM OF A SMALL TOWN THAT WESTMORELAND COUNTY AND ALL VIRGINIANS CAN TAKE PRIDE IN.

Compiled from the input of numerous town residents and business people. Compiled by Downtown Colonial Beach Board member Carl Thor with input from Joyce Reimherr, DCB President.

Appendix H: Website Survey





Colonial Beach is known for _

41 responses

Summer activities

Potomac Riverfront community

beach

Fun

Beach

Golf cart friendly beach town

Gossip

Don't know

Poverty

Gambling back in the day

It's beautiful waterfront town

once being the playground of the Potomac

Colonial Beach is known for _

41 responses

Beach

Fun beaches and great fishing

clean, quiet beaches, good food and friendly folks.

gambling

being quaint

Being sleepy town on the water

nothing special (currently)

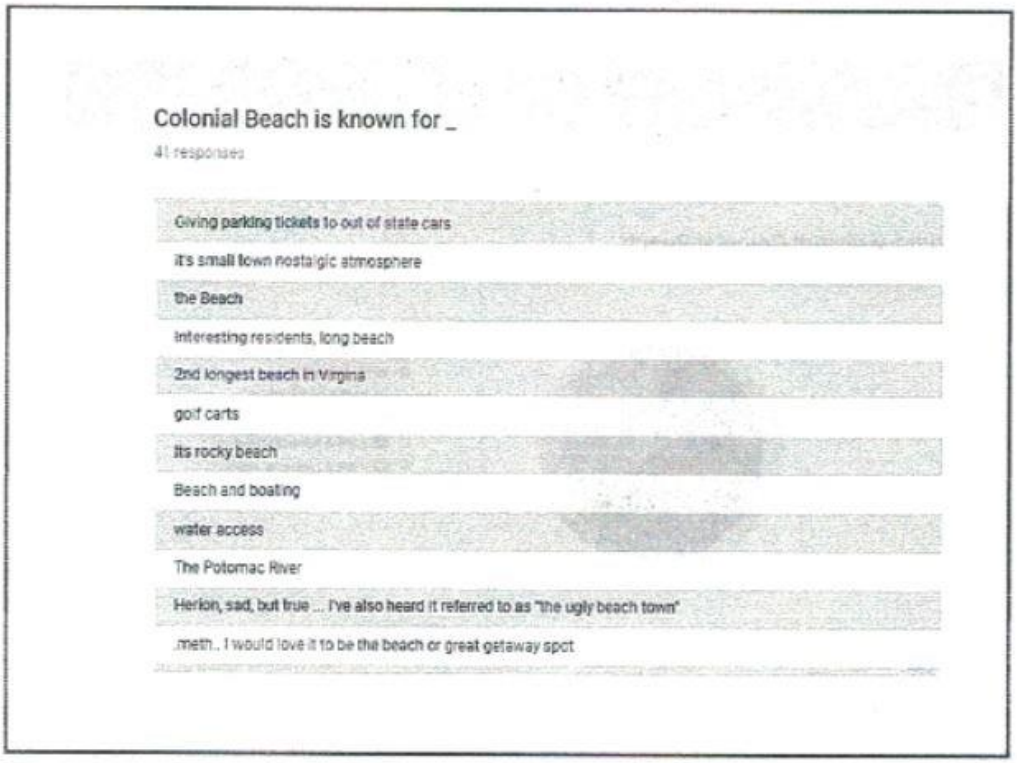
It depends on who you are talking with or to

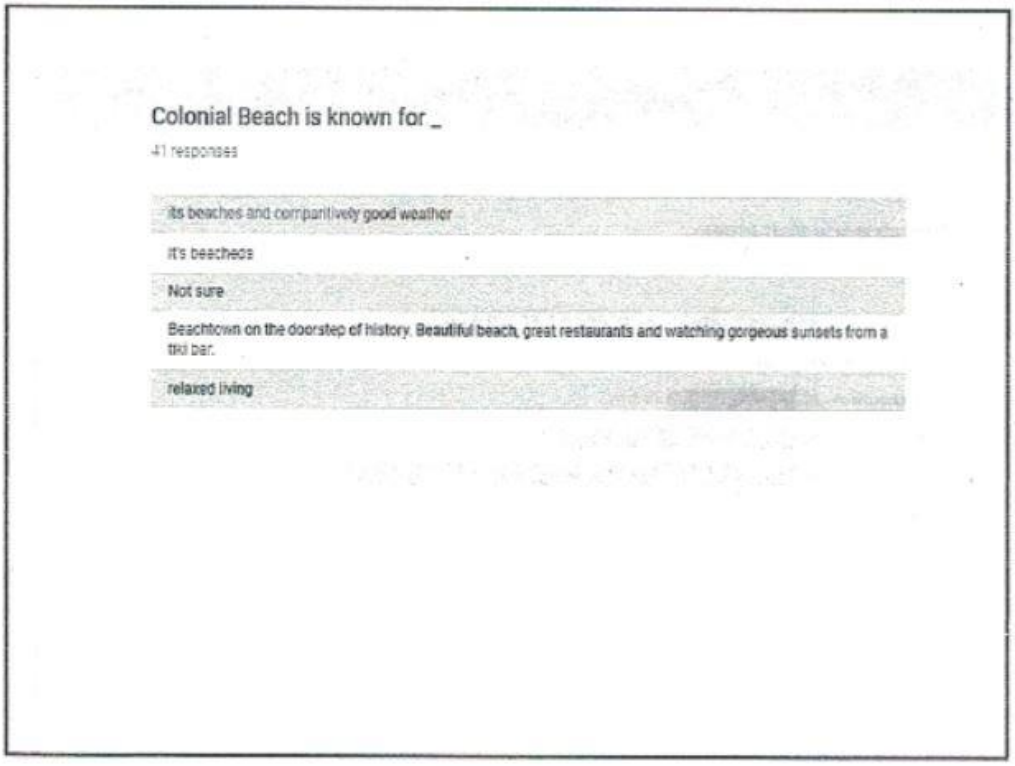
History

as a fun town to get away to

the seafood restaurants

Being the second largest public beach in Virginia


Colonial Beach is known for _
41 responses
Giving parking tickets to out of state cars
it's small town nostalgic atmosphere
the Beach
interesting residents, long beach
2nd longest beach in Virgina
golf carts
its rocky beach
Beach and boating
water access
The Potomac River
Herlon, sad, but true ... I've also heard it referred to as "the ugly beach town"
meth.. I would love it to be the beach or great getaway spot


Colonial Beach is known for _
41 responses
its beaches and comparitively good weather
it's beacheos
Not sure
Beachtown on the doorstep of history. Beautiful beach, great restaurants and watching gorgeous sunsets from a tiki bar.
relaxed living

Visitation

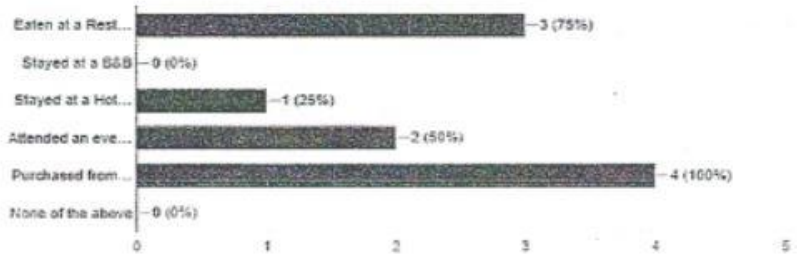
I have visited Colonial Beach..

41 responses

Tell us about your visit

During my visit I have

4 responses



I would come to Colonial Beach more often if

4 responses

I had more vacation time at work

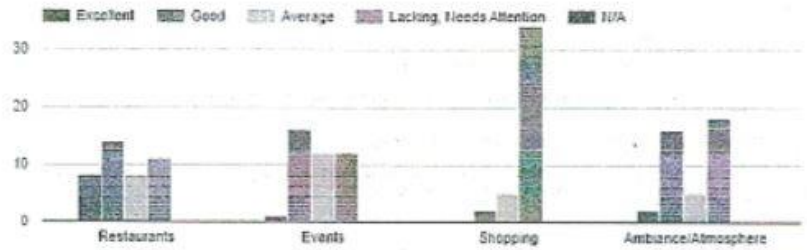
there were more reasonable priced seafood restaurants.

it were parking friendly for out of staters

there was a sense of vibrancy.

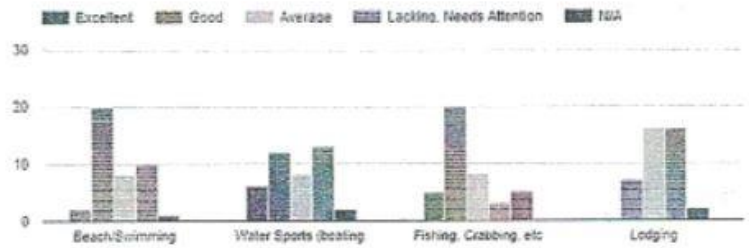
How do we rate?

Be honest, Be fair



How do we rate?

Be honest, Be fair



You didn't ask but I wanted you to know this.

- Market the town for it's waterfront location natural beauty, history, eagles, osprey, fishing, art Community.. continue to support events such as triathlon. I think those attract folks that may enjoy what CB already has to offer, so the town doesn't need to spend for new "attractions". Spruce up /revitalize what we have!!!
- Boardwalk needs shops; get rid of town buildings on N Irving and use area for development. Move Tourist Info trailer to Colonial Ave on the Town Bulletin Board lot.
- Boaters love it there!! Cannot wait to come back soon. We support all of your efforts!
- Eleanor Park needs to be sold
- Nothing here at all. Not a beach town
- Need more community events for children and the special needs community
- I love CB! I do believe we need more things to bring in people. Bring slots back, have more things to do such as this place...http://www.rubysarcade.com
- I love this little town but would like to see some beautification take place..
- Why are you doing this survey? What do you hope to get out of it? The true history of CB needs to be told/incorporated in any revamping done to the Town not someone's idea of what it should be like.
- We need things for families here
- Need parks and entertainment. Fun things for the youth of our town.
- There needs to be more good safe playgrounds and recreational activities for kids. Would love to see a life guard or two. Washington is a pretty street and its shops and eateries need to be spruced up and celebrated. It's coming along nicely but could use some help. I love the idea of the plans for the plaza at the end of Colonial.
- We checked into a motel on Irving, went out for pizza, came back, turned down bed - liiiiiiii Soiled sheets!!!!! OMG!!!! (I think it was called Wakefield something)

You didn't ask but I wanted you to know this.

- There needs to be more good safe playgrounds and recreational activities for kids. Would love to see a life guard or two. Washington is a pretty street and its shops and eateries need to be spruced up and celebrated. It's coming along nicely but could use some help. I love the idea of the plans for the plaza at the end of Colonial.
- The town has a lot of potential. A lot of improvements have happened in recent years, so maybe there will be a slow, gradual renaissance of the downtown area in Colonial Beach. In my opinion, there will have to be more full-time and part-time residents buying properties who have sufficient disposable income to support additional restaurants and other businesses in town for this growth to continue.
- What the plan to bring more businesses, tourists and events/activities to the town?
- CB has a lot of potential, just needs leaders with vision and managers who can manage.
- Lots of politics, schools that should be under Westmoreland county, poor roads, infrastructure. Too much emphasis on being a Beach town [ocean City] we will never be. The residents that are not right at the beach are forgotten. Etc, poor roads, no police presence. Ditches not maintained, run down properties. Also, the problem that there is only one escape route out of the town, especially for people that live on the point and on the beach.
- Colonial Beach has a lot of potential. The town council and town management needs to encourage new businesses and development of the boardwalk and downtown areas. Seems to me both of these areas are lacking buildings for new businesses to open up.
- That new book that's sort of based on CBVa, 'Bad Neighbors', give a nice description of the type of town I'd like to see us go toward... first get rid of the trailer trashy house on way in and promote more beachy type businesses to move into the down town area. I here the town management/rules/regs... deter more businesses than encourage.
- advertising would bring in more people for events, and places to stay.
- I think the Town should hire grant writers to access public money from the State and other bodies for items such as sidewalk repair and parks. Should consider making Irving/Monroe Bay Avenues one way to allow for safety for walking, biking and for those who do not have driveways so they can STOP PARKING ON THE SIDEWALKS! Ninety percent of the turns are right turns, driving counter clockwise. All traffic would turn left at Boundary, and the interior streets would remain two way.

You didn't ask but I wanted you to know this.

- Colonial Beach is becoming a fairly well-known regional art town.
- Improve the entrance to the town from 205. Help merchants get established at the Food Lion shopping Center & Rankins Shopping Center. Empty stores give a negative impression
- Colonial Beach needs to find it's pulse. It's theme, but definitely not playground
- The beach needs sand, not rocks. You can't keep long term vacationers bc there is nothing to keep them or their kids happy for more than one or two nights. I know from experience.
- There is so much potential; I have the sense that the old-timers don't want to spend any money to make CB known. It's really too bad because CB could really rock.
- Needs to be more pedestrian and bike friendly, sidewalks are in bad shape or non-existant
- We've recently retired (ages 56 & 58) and love Colonial Beach. We keep our 40ft sailboat here locally and support many local activities. We'd love to have the restaurants actually be open when they're suppose to be, and not trying to be sold off and the drugs aggressively stopped. As we get more and more involved here, it seems that things here may have been mismanaged for many years and certainly hope this is changing.
- I would love to see the schools doing better, big reason why I rent and don't own a house here. I'm also afraid that there is mismanagement of funds in the town. A lot of people are afraid to swim in the water for fear of it being contaminated from Dahlgren or improper waste disposal. I love that it has a small town vibe with little traffic. The restaurants are friendly and exceeded my expectations of a small town. Dockside and High Tides have a great atmosphere. I love the golf cart culture.
- The town just needs to look nicer (sidewalks, underground utilities, curb appeal of homes, etc.)
- I do not want Colonial Beach to become and Ocean City!
- Has a shaded beach with calm water. Cradle of American Republic and Democratic form of government, more US presidents born nearby than anywhere else in America(?)
- "I think the businesses are catered to, while some citizens get their needs ignored. I simply, after twenty years of waiting, want a paved road. Houses close to and newer than mine have had their roads paved...streets with already-paved roads have had theirs re-paved....and still I wait for the original paving to be done. Every year I inquire, and every year I hear the rejoinder, "Next year!"I also think our taxes are incredibly high. However, on a very positive note, I feel very, very safe in my neighborhood, and my neighbors are the best."

Appendix I: Neighborhood Meetings and Water Bill Questionnaire Responses

Planning Commission January 2019 Responses to Questionnaire

January **16 update**

VISION STATEMENT	FUTURE VISION	OFFERING HELP
Keep as is - +1+1+1+1	Businesses/Restaurants1+1+1+1+1+1+1+1+1+1+1+1+1+1+1+1+1+1+1+1+1	Editor/Proof Reader +1
	Open unused business property in town 1+1+1	
Historical- – +1+1+1+1+1+1+1+1+1+1+1+1+1	Employment +1+1+1+1+1	Writing skills +1
Family+1+1 + 1+1	Family activities +1+1+1+1+1+1+1+1+1+1+1+1	Wisdom
Quaint +1	Medical care+1+1+1+1+1+1+1+1+1	Lobbyist
Beach +1+1+1+1+1+1+1+1+1+1+1+1	Tax control +1+1+1+1+1+1	Public Relations +1
Friendly+1+1+1	Telecommunications	Policy Development
Designated Historical Homes +1+1+1+1+1	Schools apply to get National Award for Excellence	Investments
Reflect the past	Financial Resources	Grant seeker/writer +1+1
Peninsula	Clean Up 1+1+1+1+1+1+1+1+1	Attorney- retired
Growth in Future	Safe environment	
Increased	Drug Prevention 1+1+1	
Boardwalk	Blight of houses 1+1+1	
Community	Blight +1+1+1+1+1	
Artsy	Sidewalks 1+1+	
Multicultural	Attractive boardwalk +1+1+1+1+1+1	
Economic Prosperity	Signage to locate 1+1+1	
Fishing Village	Apps for Visitors	
Drop Playground on Potomac +1+1+1+1+1+1+1+1	Historical Tours+1+1+1+1+1	
	School students visit local Historical Sites	
Small Town	Call for specific volunteers	
Maritime sports	Effective Management of Town	
	Financial Accountability/Debit Taxes	
	Cleaner Main Streets +1+1+1	
	Stop drug Sales on Franklin Street	
	Grants 1+1+1+1+1	
	Cart Paths paved	
	Beach activities +1+1 Carousel/Arcade 1+1+1	
	Teen activities-not sports	

	Nursing Home/Assisted Living 1+1+1	
	Investigate School merge with Westmoreland	
	Recycle pick up	
	Eco Friendly	
	Trolley to Monroe Birthplace 1+1	
	Tourism Web Site – merge all	
	Beautification of Colonial Ave 1+1+1+1+1	
	Modernization of Infrastructure 1+1+1	
	Transparent government 1+1+1	
	Parking easier to find	
	Retail store	
	Put date of establishment 1892	
	Barking dogs - ordinance	
	Consistency with building permits	
	Town and County work together	
	Drop Box to pay Town Bills	
	Performing Arts center	
	Swimming pool	
	Affordable rents for workers/teachers	

Colonial Beach Neighborhoods

Bluff Point	Central Area	Classic Shores	Monroe Point	The Point	Riverside Meadow
Restrict commercial signs on entering town	Better Paved Rds.+1+1	Road Repairs Bike path from 7th to Meadows		Drainage+1+1+1	More upkeep to area
More frequent yard pick-up	New Sidewalks/ School sidewalks	Clean ditches more		Better Rds. +1+1+1	Replace signs as they deteriorate
Golf cart path fixed +1	Enforce Ordinances	Code enforcement+1		Protect Resources	Potholes +1
Sidewalks	Sidewalks upgraded	Volunteer to assist elderly keep homes		Sidewalks+1+1+1	Clean water ditches
Streets repaved +1	Drainage On Maryland, Lincoln, and Virginia Ave addressed +1+1+1+1	Sidewalks 1+1 Curbs 1+1		Improve water ditches Create run off ditches	Street Lights +1+1+1+1
Need more water power; pressure low Connect streets	Boardwalk repaired down that way.	Drainage control +1+1+1+1 Trash Cans around for trash		Sand on beaches better quality	Drainage
				Sound Ordinance	Signage improved
Drainage problems	Stop drug sales on Franklin Street	Ditch too deep- Two feet deep		Add Boulders to protect runoff onto beaches	Add sidewalks/fix if necessary
Lighting	Drainage in Parking areas	Repair roads +1		Repair drain pipes	No parking on sidewalks
	Use of Town Hall by residents	Police patrols more frequent		Water Management	Monroe and Irving one way make it Riverwalk
	Watch over-regulation	Speed Bumps		Parking carelessly on streets	Apply for grants
	Pedestrian safety	Repave streets Maintenance		Stop burning in yards	Emergency health care

	Hall	for speeders		Chesapeake BA+1+1	homes
	Drainage	Euclid Ave. Paved			Pet disposal station
		Playground for kids+1		Walking Paths	
		Lighting on streets+1+1		Cleaner beach	
		Laws need to enforced		Access road from Irving to Bancroft cared for better	
		Rental properties maintained		Underground electric	
		Sidewalks		Enforcement of old cars/ messy yards	
		Coffee house Open all time		Boutique Hotel at Eleanor Park +1	
				Clean up properties	
				Control speeding	
				Late night music stopped	
				Bike lanes	
				Trees along beaches	
				Signage	

Appendix J: Water Bill Questionnaire

COMMUNITY VISION STATEMENT OF COLONIAL BEACH

Comprehensive Plan (2019)

- *Colonial Beach is an attractive unique, quaint small town on the Potomac River with ties to the surrounding rich historic area, offering a clean, safe, friendly and convenient place to live, work, and play as well as re-emerging "Playground on the Potomac" for those seeking relaxation, maritime fun and the arts throughout the year. (Comprehensive Plan)*

As a resident of Colonial Beach, I agree with this Vision: Yes No (Circle response)

If not what words would you use to better define the town?

(Please use single words in your response)

What three changes would you like to see in your **neighborhood** of Colonial Beach?

-

What talents/gifts do you have that you could share with the Town?

1. _____-- 2_____3_____

Would you be willing to help the town using your talents? YES NO

TALENTS YOU COULD SHARE:

_____

_____

(Possible Talents = teach; transcribe; writer; editor; builder; grant seeker; fund raiser; data entry; gardeners; landscaper; organizer; etc.)

Neighborhoods in Colonial Beach = Point;

Appendix K: Revitalization and Beautification Ideas from Colonial Beach Artists Guild

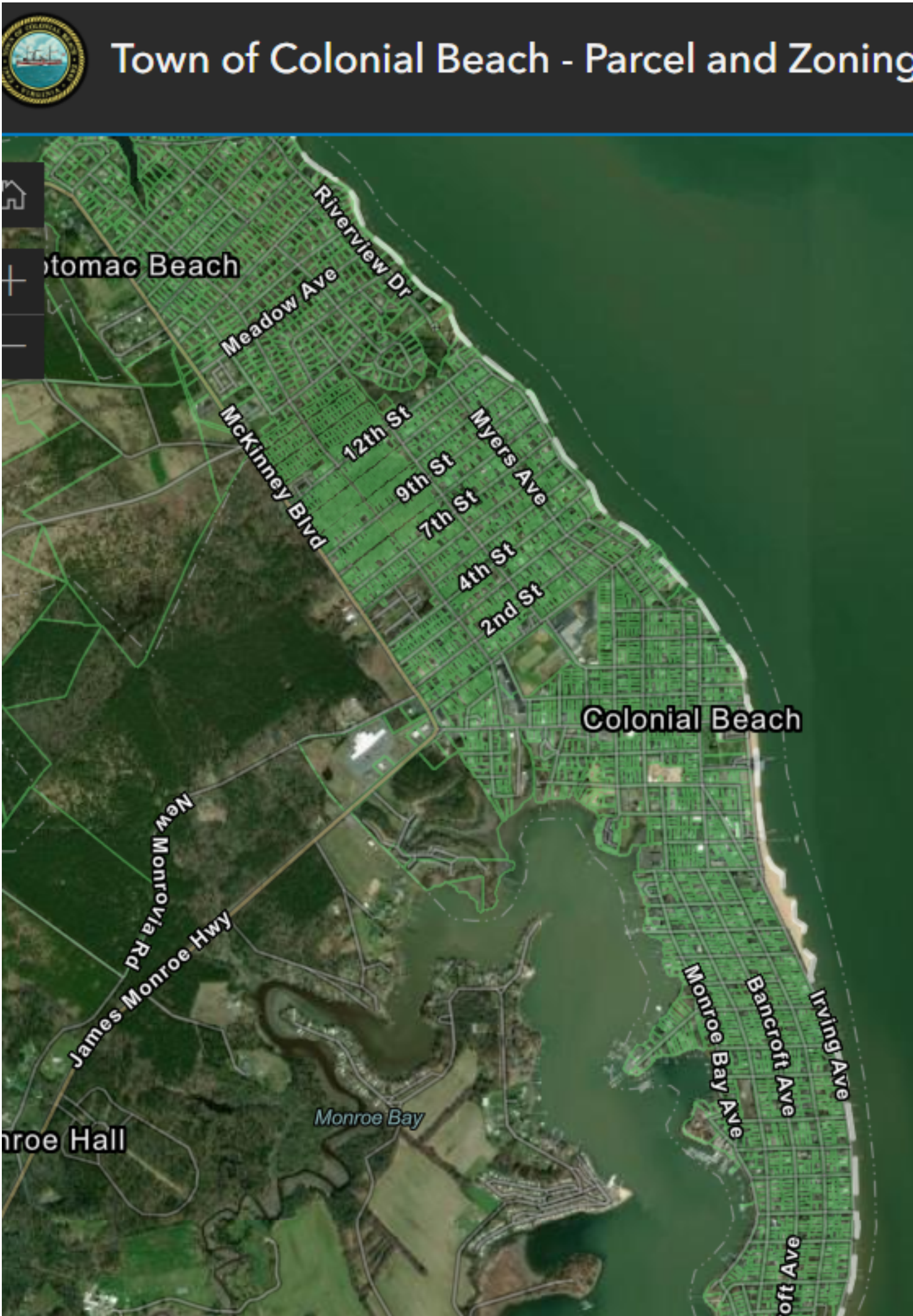
- Landscaped "Welcome to Colonial Beach" signs (3x – at Colonial Ave, and further back on 205 by Wilkersons)
- Hanging pots of plants on poles on Colonial Avenue and Washington Avenue (could be sponsored by businesses) (2x)
- Artistic banners on Colonial Avenue
- Metal sculptures
- Preserve the old buildings, particularly the "Old Bank". Repair its windows.
- Partner with museum (2x) and the tourist bureau
- Hold a contest for HS students to "improve" business frontages
- More trees on Washington (2x)
- Little white LED lights on trees (2x)
- Add trees, etc. to beautify Colonial
- Long rectangular planters for flowers and put banners in there as well
- Put the banners on flagpoles at each business
- Paint the bulletin board black
- Welcome sign when you drive into Colonial Beach that tells what we are about.
- LED fairy lights along street and posts.
- Beachy colors, light blue, yellow, green
- A series of posters on planks attached to poles depicting local history or attractions as you enter town to Washington Ave.
- More vintage street lights/lamps along Colonial and Washington Aves. Sculptures of past presidents from VA
- A colorful (artistic) pull off on Colonial Ave. with a huge map of the Downtown and beach area
- Building/code enforcement that makes residents on main streets keep their property cleaned up, landscaped within reason
- Redesign town entrance sign at 205
- Coordinated signage from 205 entering Colonial Beach down Colonial Ave.
- Use the real estate companies on Colonial to lead the way in making their buildings more attractive.
- Contact community colleges, universities nearby for students to do art & design projects. Could possibly get credit.
- Paint the bulletin board black
- Elementary/Middle School has an after school art program. Perhaps involve them in making historical drawings and have that continue into creating a mural.

Appendix L: Housing definitions

- Accessory Dwelling Unit - This is a second, subordinate dwelling unit added to or created within a single-family detached dwelling, which provides independent living, sleeping, eating, cooking, and sanitation facilities.
- Affordable Housing - Households typically paying no more than 30% of their income towards housing.
- Area median income (AMI) – This is the median income of all households in a given county or metropolitan region. The area median income (AMI) is determined by the Department of Housing and Urban Development (HUD) on an annual basis.
- Blighted Structure - A structure is blighted when it exhibits objectively determinable signs of deterioration sufficient to constitute a threat to human health, safety, and public welfare.
- Density - The average number of dwelling units or persons per gross acre of land, usually expressed in units per acre, excluding any area of a street bordering the outside perimeter of a development site.
- Dwelling Unit - A single unity providing complete, independent living facilities for one or more persons, including permanent provisions for living, sleeping, cooking, eating, and sanitation
- Housing Stock - The number of existing housing units based on data compiled by the United States Bureau of the Census and referable to the same point or period in time.
- Manufactured Housing - Is a structure, transportable in one or more sections, which in the traveling mode is 8 body feet or more in width or 40 body feet or more in length or which when erected on-site is 320 or more square feet, and which is built on a permanent chassis and designed to be used as a dwelling with or without a permanent foundation when connected to the required utilities, and includes the plumbing, heating, air-conditioning, and electrical systems contained in the structure.
- Rehabilitation - The labor, materials, tools, and other costs of improving buildings, other than minor or routine repairs. The term includes where the use of a building is preserved to prevent blight.
- Rent Overburdened - Households who pay more than 30% of their gross income a month would be considered overburdened when renting an apartment at or above the median rent.
- Zoning - The classification of land by types of uses permitted and prohibited in a given district, and by densities and intensities permitted and prohibited, including regulations regarding building location on lots.
- Resort Commercial (RC District) - Zoning district, that portion of Colonial Beach referred to as the downtown beach front provides a resort area for tourists. Land use in this district shall orient itself to the development of an attractive, viable resort area.
- Commercial Residential (CR District) - Zoning district that portion of his district is to provide for a transitional mixture of uses. Although commercial uses are emphasized, mixed commercial and residential uses may be continued, developed, and redeveloped. Residential and commercial ventures may be allowed in the same structure.
- Residential General (R-2 District) - Zoning district, the general intent of this district is to promote single-family dwelling units and open areas. The district is established to protect and enhance the essential characteristics of residential communities and to promote a suitable environment for family life. New Development or redevelopment project within this district shall have a harmonious and compatible relationship with the surrounding neighborhood.

- Block Grant - The Community Development Block Grant (CDBG) is a HUD funded grant program designed to ensure affordable housing and community services, and to create jobs through the expansion and retention of businesses.


Social Vulnerability Classification
High Social Vulnerability
Moderate Social Vulnerability
Not Socially Vulnerable
Not included in the analysis


Town of Colonial Beach - Parcel and Zoning
Riverview Dr
Meadow Ave
McKinney Blvd
12th St
9th St
7th St
4th St
2nd St
Myers Ave
Colonial Beach
New Monrovia Rd
James Monroe Hwy
Monroe Bay
Monroe Bay Ave
Bancroft Ave
Irving Ave

Northern Neck Planning District Commission

Regional Hazard Mitigation Plan

2023 Update

Prepared By:

The Olson Group, Ltd.
EXPERIENCE • INSIGHT • SERVICE

Submitted On: _____

Section 1
Table of Contents

List of Tables

List of Figures

Section 2
Introduction

Contents of this Section

2.1 PURPOSE

Hazard mitigation is sustained actions taken to reduce or eliminate long-term risk to people and property from hazards and their effects. A hazard mitigation plan states the aspirations and specific actions a community intends to follow to reduce vulnerability and exposure to future hazard events. A systematic process centered on the participation of citizens, businesses, public officials, and other community stakeholders to formulate these plans

A multi-jurisdictional hazard mitigation plan is the physical representation of a group of local jurisdictions' commitment to reducing risks from natural hazards. Local officials can refer to the Plan in their day-to-day activities and decisions regarding land use and planning, regulation and ordinance creation and enforcement, granting permits, capital improvement investments, and other community initiatives. Additionally, multi-jurisdictional hazard mitigation plans can serve as the basis for states to prioritize future grant funding as it becomes available.

This Plan meets the requirements for a local hazard mitigation plan under regulations within 44 CFR 201.6, published by the Federal Emergency Management Agency (FEMA) in September 2009.

This Plan update allows jurisdictions within the Norther Neck Planning District Commission (NNPDC) to obtain all disaster assistance, including all categories of Public Assistance, Individual Assistance, and Hazard Mitigation grants available through the Robert T. Stafford Disaster Relief and Emergency Assistance Act, P.L. 93288, as amended. In addition, future enhancements of the State All-Hazard Mitigation Plan will allow the State to obtain more significant funding for hazard mitigation planning and projects (20 percent of Federal Stafford Act disaster expenditures versus 7.5 percent for a standard state

plan). It also keeps the State eligible for the annually funded Building Resilient Infrastructure and Communities (BRIC) Program and the Flood Mitigation Assistance Program.

Without this Plan, all eligible local jurisdictions would be ineligible to receive various disaster recovery programs. Including the Public Assistance Program to repair or replace damaged public facilities and the Fire Management Assistance Program to help the State and communities recover from the costs of major disasters. In contrast, the State and local communities would remain eligible for certain emergency assistance and Human Services programs available through the Stafford Act.

The Northern Neck Regional Hazard Mitigation Plan 2023 Update will continue to be a valuable tool for all community stakeholders by increasing public awareness about local hazards and risks and providing information about options and resources available to reduce those risks. Educating the public about potential dangers will help each jurisdiction protect itself against the effects of future hazards and will enable informed decision-making regarding where to live, purchase property, or locate a business.

The 2017 plan was updated in 2023 by the Northern Neck Planning District Commission. The 2023 version of the Plan includes the most current population and demographics, all mitigation strategies, goals, and objectives, and a review and update of most maps.

2.2 Organization of the Plan

The Plans organization parallels the structure provided in 44 CFR 201.6. It has ten sections, appendices containing mitigation assessment annexes., supporting documentation, and adoption resolutions. In addition, there are references to the CFR throughout the Plan. Where possible, these provide specific section and subsection notations to aid the review process. The plan organization is as follows:

Section 1: Table of Contents
Section 2: Introduction
Section 3: Community Profile
Section 4: Adoption and Approval
Section 5: Planning Process
Section 6: Hazard Identification, Profiling, and Ranking
Section 7: Risk Assessment
Section 8: Capability Assessment
Section 9: Mitigation and Action Plan
Section 10: Plan Monitoring and Maintenance
Appendices

There are references to 44 CFR throughout the Plan. The Plan also includes references to the FEMA crosswalk document, which reviews mitigation plans.

2.3 Hazards and Risk Assessment

2.3.1 Hazards

The Hazard Identification and Risk Assessment (HIRA) provides a systematic and objective approach to assessing hazards and their associated risks that provides an objective measure of an identified threat and leads to the ability to mitigate the risk of a hazard. The HIRA assists by providing a tool that jurisdictions can use to assess risk based on potential impacts on a community and the frequency of an event.

Systematic risk assessments can shift the focus of programs from being solely reactive to being proactive. A proactive approach to emergency management leads to more disaster-resilient communities.

The HIRA is a crucial component of a hazard mitigation plan because it provides a solid fact base on which to base mitigation goals and strategies. The HIRA consists of three components:

1. Identification of hazards that could affect the Northern Neck Region
2. Profiling hazard events and determining what areas and community assets are the most vulnerable to damage from these hazards
3. Estimation of losses and prioritization of potential risks to the community

The Northern Neck Hazard Mitigation Working Group (NNHMWG) re-evaluated the identified hazards during the planning process to determine the threats with the most significant impacts. However, the NNHMWG did not address specific hazards due to the infrequency of occurrences and their limited impact. Sections 6 and 7 of this Plan include detailed descriptions of the process used to assess and prioritize the Northern Neck Region's risks from natural hazards and quantitative risk assessments for the region. Ten hazards were initially identified in the 2017 Plan, but the NNHMWG has specified and included 3 (three) additional hazards in this update. The current list of threats in priority order are:

- Tornado
- Severe Weather
- Coastal Flooding
- Riverine Flooding
- Wildfire
- Winter Storm
- Hurricane/Tropical storm
- Coastal Erosion
- *Pluvial Flooding*
- *Landslide*
- Drought
- *Heatwave*
- Earthquake

Note: Hazards in Italics are additions to this plan update

For each of these hazards, the profiles in Section 6 include:

- Description
- Geographical Extent
- Severity
- Impact on Life and Property
- Occurrence (probability)

2.3.2 Risks

Calculating risk is a numerical indication of potential future damages and is a FEMA requirement. Although the range of events from a tornado to earthquake all have some potential to affect the Northern Neck Region: tornado, severe weather, wildfire, and coastal and riverine flooding are the most significant countywide hazards, based on the criteria and experience.

2.4 Hazard Mitigation Goals, Objectives, and Actions

Section 9 of this Plan describes the Northern Neck Region's priorities for mitigation actions. The section divides the actions by priority, and describes the funding required, sources of funding, the level of support,

and the timing of the action. The section also includes the Northern Neck Region's hazard mitigation goals and objectives.

2.4.1 Hazard Mitigation Goals

The Northern Neck Region Hazard Mitigation Steering Committee and Working Group members used the results of the Hazard Identification and Risk Assessment (HIRA) and the Capability Assessment to assess the stated goals to inform updated strategies, actions, and projects for the region and their jurisdictions. The priorities differ somewhat from jurisdiction to jurisdiction. Each jurisdiction's priorities were developed based on historical damages, existing exposure to risk, community goals, and weaknesses identified in the Capability Assessment.

The Hazard Mitigation Steering Committee supported updating the goals, objectives, and mitigation actions. The mitigation actions provide direction and focus on addressing or solving local mitigation issues and problems effectively. The Northern Neck Regional Hazard Mitigation goals are:

> **Goal 1:** Promote sustainable development utilizing alternative pathways that encompass proactive adaptations to mitigate against the risks posed by natural hazards, anticipate vulnerabilities, and strengthen regional resiliency.
>
> **Goal 2:** Monitor the impacts of climate change utilizing multiple sources of scientific expertise, historical data, and technological advances to expand problem-solving options and mechanisms that address the threat of natural hazards to the Northern Neck Region.
>
> **Goal 3:** Pursue opportunities to increase the resiliency of critical infrastructure through ongoing capabilities assessments, known hazard monitoring, and developing comprehensive strategies in the communities.
>
> **Goal 4:** Enhance the capabilities of local government to address natural hazards to enhance the whole community for increased resilience.
>
> **Goal 5**: Coordinate education on disaster preparedness by providing knowledge and teaching skills to citizens and visitors, focusing on vulnerable people, to mitigate the risk of casualties.
>
> **Goal 6:** Encourage education and assist communities in developing and enforcing solid floodplain management programs and participation and compliance with the National Flood Insurance Program (NFIP), utilizing available resources and tools to identify the floodplains and risk areas.

During jurisdictional interviews, the Working Group reviewed the objectives and strategies from the previous plan during Steering Committee and Working Group Meetings and within individual localities. Events, lessons learned, and revised goals were considered during these conversations.

2.4.2 Objectives

Objectives are well-defined intermediate points in the process of achieving goals. (*Objectives* are generally coterminous with *strategies*.) The Northern Neck's Regional mitigation planning objectives include:

- Pursuing the implementation of the high-priority, low/no-cost recommended actions.
- Keeping the concept of mitigation at the forefront of community decision-making by identifying and stressing the recommendations of the Hazard Mitigation Plan when other community goals, plans, and activities are discussed and decided.
- Maintaining constant monitoring of multi-objective, cost-share opportunities to assist the participating communities in implementing the recommended actions of this plan for which no current regular funding or support exists.

- Incorporate hazard risk information, and prioritize mitigation actions into appropriate local initiatives and programs through collaborative interaction between all related community departments and staff.
- Evaluating and assessing regional mitigation plan goals and local jurisdiction action effectiveness to reduce hazard risk exposure.

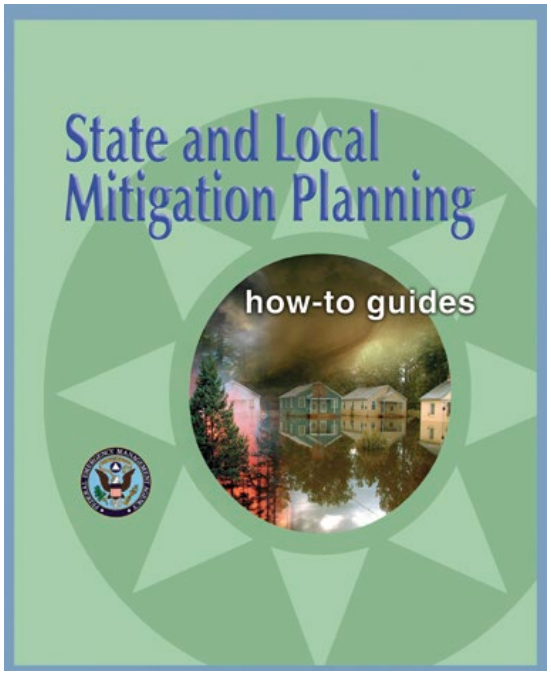
2.4.3 Actions

Actions are detailed and specific strategies, actions, and projects that help support regional natural hazard resilience and mitigation goal achievement. They are highly focused, precise, and measurable. The Northern Neck's Regional mitigation actions include, but are not limited to:

- Installation of check valves in stormwater runoff systems
- Community outreach programs
- Structural retrofits of flood-prone critical infrastructure
- Storm sewer infrastructure improvements
- Engineering studies to improve drainage problems
- Generator installation for critical infrastructure
- Integration of Greenspace, wherever applicable
- Creating public education opportunities
- Acquisition of flood prone properties (least likely scenario in the region)

The above list illustrates overall action items rather than an exhaustive list. Please refer to Section 9.3.3 for more information on jurisdictional-specific mitigation actions.

2.5 Planning Process



This Plan update is the product of the efforts of a cross-section of people from Lancaster, Richmond, Northumberland, and Westmoreland Counties, federal, state, and local jurisdictions, and other interested stakeholders. This effort builds on several mitigation planning initiatives dating back to 2003. The Executive Director, the staff from the Northern Neck Planning District Commission (NNPDC), Virginia Department of Emergency Management (VDEM Region 5}, and Federal Emergency Management Agency (FEMA) Region 3, have provided technical expertise, including a review of previous hazard mitigation planning initiatives, development of mitigation strategies, and the strategy implementation plan.

The Plan update was prepared following the process established in the State and Local Mitigation Plan Development Guides produced by the Federal Emergency Management Agency (FEMA) and 44 CFR 201.6 Local Mitigation Plan.

The process includes four basic steps:

Step 1 Organize Resources. Organizing resources is in Section 5 (Planning Process). The section details the jurisdictions involved, the processes used to establish leadership and advisory groups, and public and other outreach and involvement efforts.

Step 2 Assess Risks. The risk assessment was completed with the assistance of Olson Group consultants and approved by the NNHMWG. The Risk Assessment is in Section 7 of the Plan, and a separate Hazard Identification is in Section 6.

Step 3 Develop a mitigation plan. Development of the Mitigation Plan is in Section 5 (Planning Process) and Section 9 (Mitigation Action Plan). Section 5 includes details about who was involved, the processes used, and the products developed. Section 9 provides specific information about identifying and developing mitigation goals, objectives, and actions based on Section 7 (Risk Assessment) and Section 8 (Capability Assessment).

Step 4 Implement the Plan and monitor progress. Implementing the Plan is described in the Mitigation Action Plan in Section 9, which includes details about who is responsible for implementing specific strategies and actions. In Section 10, the Plan Monitoring and Maintenance section describes long-term implementation through periodic updates and reviews.

Once the Plan update is promulgated by the NNPDC and approved by FEMA, the Committee will function as an advisor to the State Hazard Mitigation Officer on hazard mitigation efforts, including future reviews and revisions.

2.6 Adoption and Approval

[NOTE TO VDEM/ /FEMA REVIEWERS: The following date will be filled in after these events take place.

The Northern Neck Planning District Commission, with the endorsement of the Northern Neck Regional Steering Committee was responsible for recommending plan approval to the 10 jurisdictions within the Northern Neck Region. The Plan was submitted to VDEM and then FEMA Region III for review. FEMA reviewed and approved the Plan pending adoption on [Insert DATE]. Subsequently, the participating jurisdictions adopted the Plan, submitted their adoption resolutions to FEMA, and received their own approval notifications (see Appendices H and I).

The following 10 jurisdictions participated in the Plan by taking an active part in the planning process, identifying mitigation actions, and will adopt the Plan:

- Lancaster County
- Town of Irvington
- Town of Kilmarnock
- Town of White Stone
- Northumberland County
- Richmond County
- Town of Warsaw
- Westmoreland County
- Town of Colonial Beach
- Town of Montross

2.7 IMPLEMENTATION

The implementation process is described as part of the specific actions in the Mitigation Action Plan in Section 9.

2.8 MONITORING AND UPDATING THE PLAN

Section 10 (Plan Monitoring and Maintenance) describes the schedule and procedures for ensuring that the Plan stays current. The section identifies when the Plan must be updated, who is responsible for monitoring the Plan, and ensuring that the update procedures are implemented. This section provides a combination of cyclical dates (oriented toward FEMA requirements) and triggering events that will initiate amendments and updates to the Plan.

2.9 PLAN POINT OF CONTACT

The NNPDC Executive Director is responsible for monitoring the Plan and initiating the cyclical update process. The point of contact is:

Jerry W. Davis, AICP
Executive Director
Northern Neck Planning District Commission
PO Box 1600
Warsaw VA 22572
Phone: 804-333-1900

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Section 3
Community Profile
Contents of this Section

3.1 Introduction

The recommendations in the Northern Neck Regional Hazard Mitigation Plan are based on identification of past and potential problems due to natural and man-made hazards. As part of the process of identifying potential problems, it is useful to understand the physical characteristics of the Northern Neck Region.

3.2 Geography, Climate, and Population of Northern Neck Region

3.2.1 Geography

The Northern Neck Planning District Commission (NNPDC) encompasses four counties and six towns in the eastern part of Virginia:

Counties:

- Lancaster
- Northumberland
- Richmond
- Westmoreland

Towns:

- Town of Colonial Beach
- Town of Irvington
- Town of Kilmarnock
- Town of Montross
- Town of Warsaw
- Town of White Stone

The Potomac River binds the Northern Neck Region north and east, the Chesapeake Bay east, and the Rappahannock River south and west. In total, the planning area encompasses approximately 745 square miles. Lancaster County is the smallest county in the Northern Neck Region, with 133 square miles, based on the total land mass. Westmoreland County is the largest at 229 square miles. Northumberland and Richmond Counties are comparable at 192 and 191 square miles, respectively.

The four counties share more than 1,110 miles of shoreline. Figure 3-1: shows the Northern Neck Planning District. Nearby localities to the south include Caroline County, Essex County, and Middlesex County. The Northern Neck Region is approximately 65 miles northeast of the City of Richmond, the State capital, and 120 miles southeast of Washington, D.C. The northern border is the Potomac River and the State of Maryland.

Figure 3-1: The Northern Neck Planning District

Source: Northern Neck Soil & Water Conservation District https://www.nnswcd.org/images/NNmap.jpg

Lancaster County

Lancaster County covers approximately 135 square miles or about 86,267 acres of land. Lancaster County lies in Virginia's coastal plain and is bound on the east by the Chesapeake Bay and to the south and west by the Rappahannock River. Both water bodies are major contributors to the county's 180 miles of shoreline. The terrain is generally flat with the highest elevations around 100 feet above sea level. The county is rural in nature with limited public infrastructure. Due to limited public water supply and wastewater treatment infrastructure, Lancaster County usually requires on-site sewage facilities for the disposal of waste and individual or community wells for domestic water supplies. In addition, a wide variety of environmentally sensitive areas in the county include steep slopes, floodplains, prime agricultural lands, wetlands, and soils unsuitable for septic systems.

Roughly 65% of Lancaster County's land is limited in some form. Specific physical limitations causing concern include:

- the suitability of soils for septic systems,
- the loss of prime agricultural farmlands to development, and

- the presence and location of shrink-swell soils.

The continuing loss of farmland to other uses is of great concern. For example, farmlands provide acres of the previous land surface that act as recharge areas for groundwater aquifers and are particularly important to Lancaster County, which depends entirely on groundwater aquifers for its drinking water supply.

Lancaster County is known for its tourist and recreational attractions. Historic sites, buildings, and marinas attract visitors throughout the year. The retiree population is increasing while younger generations are leaving the area.

Town of Irvington

The Town of Irvington is in Lancaster County, located along the shoreline of Carter's Creek, and is approximately 1.8 square miles. The town has over eight miles of shoreline and encompasses a healthy amount of water related business and industry, additionally there are many attractions that draw tourists to the historic town. In 2019 the town received a potential economic boost in the form of the new Compass Entertainment Complex. Construction on the complex began in 2019 and opened in September 2020.

The Town provides water service to residents. However, the majority septic and water services remain via private on-site management. The Tides Inn and the Tides Lodge both maintain their own wastewater treatment facilities.

Town of Kilmarnock

The Town of Kilmarnock is the largest incorporated town in Lancaster County. The town is unique in geography as its borders reach into both Lancaster and Northumberland Counties presenting a of approximately 2 (two) square miles. The town hosts a prominent seafood and agriculture economy and presents a popular tourism market. The town has initiated a grant program to assist business owners with façade improvements as part of town revitalization projects and economic development planning.

Sewage and water are provided by the Town for most properties. Sandy and loamy soils present runoff issues and vegetation growth with elevation above sea level ranging widely.

The town is home to the Bon Secours Rappahannock General Hospital, a satellite campus of the Rappahannock Community College, and Town Centre Park. Town Centre Park presents 9 acres of recreation that utilizes resilient mitigation practices such as underground utility lines. The town's commitment to green infrastructure is apparent in the park with actions such as vegetation being planted to assist with runoff.

Town of White Stone

The Town of White Stone, located in Lancaster County, is laced with history. Famously located in the town is the Robert O. Norris bridge that spans two miles across the Rappahannock River. The town measures approximately one square mile with the majority being land, and an elevation above sea level of 40-50 feet. Seafood and agriculture dominate the economy and provide the town's businesses such as restaurants and markets with supplies. The town's comprehensive plan states that it is identified in two ways, R-1 for residential and C-1 for commercial and states the following in reference to its R-1 district: "This district is composed of certain quiet, low-density residential areas plus certain open areas where similar residential development appears likely to occur. The regulations for this district are designed to stabilize and protect the essential characteristics of the district, to promote and encourage a suitable environment for family life where there are children, and to prohibit all activities of a commercial nature."

The Town just executed Phase 1 for a new wastewater treatment plant. The new plant was successfully put into operation on September 22, 2022. The first phase of the project included 175 hook-ups. Recent town upgrades include a business district revitalization project and the White Stone Neighborhood Improvement Project, both of which contribute to the operability of the town and incorporate resilient mitigation measures for the Town of White Stone.

Northumberland County

According to the U.S. Census, the Northumberland County comprises 286 square miles. The Rappahannock River binds Northumberland County to the south, the Potomac River to the north, and the Chesapeake Bay to the east. Northumberland County has an agricultural landscape with significant forestry where farming is dominant. Residential development is concentrated along roads and the waterfront. Manufactured homes are scattered throughout the county but, like other types of residential development, are found primarily along roads, with marinas and industrial construction along the waterfront. Northumberland County is often referred to as "the Mother County of the Northern Neck."

Elevations in the county vary widely from approximately 5 feet in coastal areas such as Reedville to around 130-140 feet in the most inland landscapes. County water and sewage is serviced in some areas by the Callao and Reedville wastewater treatment plants. Some areas remain dependent on private on-site management systems.

The Village of Callao began a quest to revitalize the area in 2015 noting the need for improvements to the business district, roads, and integration of resilient infrastructure practices in public areas. In 2021 grants funds were awarded to the County and bids were sought for improvements to the Callao and Reedville wastewater treatment facilities.

Richmond County

Richmond County comprises a land area of approximately 192 square miles and 24 square miles of water equaling 216 square miles total. The county is bordered by Westmoreland County to the north, Northumberland County to the east, and the Rappahannock River from west to south. Agricultural land use dominates the landscape of primarily rural Richmond County. Most of the county's land area is agriculture and forestry in nature. Forests cover approximately 59% of the county and a large portion is protected in conservation, with agriculture remaining evident in most of the residual land areas. Six Thousand acres of the Rappahannock River Valley National Wildlife Refuge are in Richmond County. The county boasts some of the highest elevations in the Northern Neck Region with most land elevations reported over 100 feet.

Richmond County manages several solid waste facilities, and the Town of Warsaw maintains a wastewater treatment facility and town water and sewage services. The county widely remains dependent on private on-site management systems such as wells and septic.

Richmond County is steeped with historical significance and was founded in 1692. The county sites in their comprehensive plan the importance of preserving the rurality of the community while working towards technological expansions. Population and occupancy varies widely in Richmond County including fulltime residents of increasing age groups, secondary homes, an Amish community, and a tourism base. Surveys identified the need for more non-motor vehicle transportation paths. The County is currently working through VDOT grants create a recreational trail network that will ultimately connect several main focal points throughout Warsaw.

Town of Warsaw

The Town of Warsaw, located in Richmond County identifies as "the Heart of Virginia's Northern Neck" and is comprised of approximately three square miles of which all is land. The town's elevation is significant within the Northern Neck Region as it is reported as approximately 130 feet. The town's demographics presents with approximately 29% of the population being of or close to retirement age. Surveys performed by the County presented the need for more non-motor vehicle paths such as walking and biking trails. Warsaw is currently benefiting from that through the County's development projects' with VDOT, creating a recreational trail network that intended to connect several main focal points throughout Warsaw.

Warsaw is enriched with historic sites such as Menokin and Sabine Hall and hosts critical facilities that include the Northern Neck Regional Jail and the Warsaw Sewage Plant. Water and sewage services are maintained by the Warsaw Public Works Department.

The town strives to maintain the local history and community awareness. Tourist attractions in the area include historic sites and local shops, as well as the local park, access to the Rappahannock River Valley National Wildlife Refuge, and camping at Naylors Mill Campground.

Westmoreland County

Westmoreland County covers 253 square miles, of which only 24 square miles is water. The county is bordered by the Potomac River and Maryland to the north, Northumberland County to the southeast, the Rappahannock River and Richmond County to the south and King George County to the northwest. Westmoreland County is a rural area featuring numerous waterfront communities. Most of the county is forestland. Residences and businesses are distributed throughout the county but are often clustered near the Towns of Colonial Beach and Montross, or in one of the numerous small communities. There is also an unusually high percentage of seasonal homes used recreationally. Residential subdivisions are mostly located along the county's creeks, bays, or rivers.

Municipal water service is available to various areas in Westmoreland County including the Town of Colonial Beach and the Town of Montross, and wastewater services provided by Westmoreland County serve the Town of Montross and the corridor that runs south along Route 3 to Templeman's Crossroads. Westmoreland County also attends to the Coles Point and Washington District areas with public wastewater services. The Town of Colonial Beach operates a wastewater treatment plant for the town. Outside of the areas mentioned above, the remainder of properties are managed by private on-site management systems. The Westmoreland County Solar Project is a ground-mounted solar project which is spread over an area of 161 acres and was initiated by Savion LLC in 2021. The project currently is active and sells produced energy to Dominion Power.

The county contains the Westmoreland State Park and Voorhees Nature Preserve. The area is steeped in historic events and figures pertinent to the shaping of the United States. The economy in Westmoreland County is based largely around agriculture and tourism.

Town of Colonial Beach

The Town of Colonial Beach, located in Westmoreland County, located along the Potomac River. The town measures approximately 2.5 square miles of which 0.2 square miles is water and the elevation averages approximately ten feet above sea level. The town is populated relatively evenly across age groups and draws a significant tourist following yearly.

Colonial Beach provides water and sewage services and has entered multiple improvement projects in recent years. Projects include living shoreline initiatives, water and sewage improvements, the Central District Drainage project, and is currently seeking funding to address a significant erosion issue at North Beach. The town utilizes green infrastructure practices when planning improvements to increase their resiliency.

Colonial Beach boasts a significant tourism market utilizing the history, natural resources, and unique destination to draw visitors. They are working to continue their revitalization project and in 2022 managed a project in which building inventory records were recorded for the town.

Town of Montross

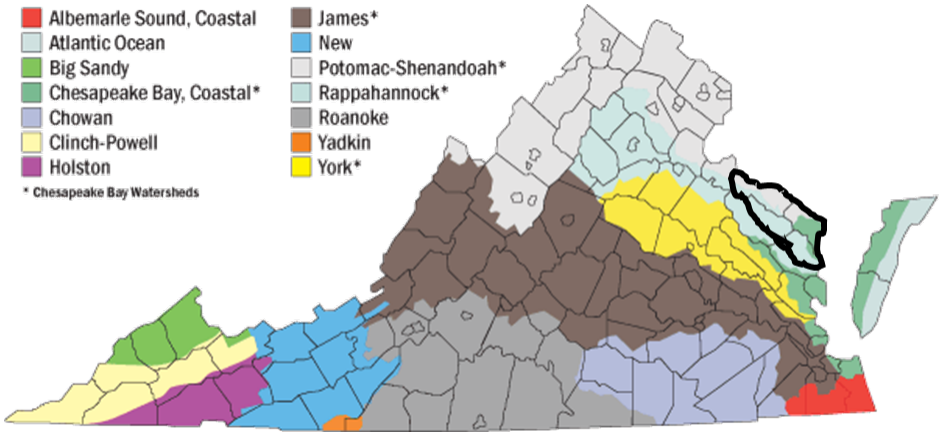
The Town of Montross is the county seat in Westmoreland County with a small population of approximately 500 during the 2020 Census. The town is all land measuring one square mile with an elevation well above 100 feet. Montross encompasses access to the nearby Westmoreland State Park, which provides a nature rich environment for residents and visitors. Municipal water access is provided to residents and businesses of the town as well as some properties just outside of town limits.

Montross underwent a significant revitalization project in the last decade that brought improvements to roadways, drainage, structures, and additional measures such as beautiful public murals, landscaping, and streetlights.

3.2.2 Hydrology

The Northern Neck Region lies within three major watersheds: the Potomac, the Rappahannock, and the Chesapeake Bay Coastal. Numerous creeks traverse the Northern Neck Region, and multiple inlets and coves mark the shoreline. Figure 3-2: Virginia's Major Watersheds, illustrates the significant watersheds of Virginia, emphasizing the Northern Neck Region in a bold black outline.

Figure 3-2. Virginia's Major Watersheds



Source: The Virginia Department of Conservation and Recreation

The Potomac Watershed comprises about 20% of the Chesapeake Bay watershed and is a major factor in the bay's restoration. The Potomac Watershed spans 5,702 square miles, is the third largest in Virginia, and is fed mainly by the Shenandoah, South Branch Potomac, Monocracy, Anacostia Rivers and the Conococheague Creek. Major uses of water in this area are for public and domestic water supply, power plant cooling, industrial use, and agriculture. About 600 million gallons per day (mgd) is used for the water

supply, of which 500 mgd is used for the Washington area. About 1.6 billion gallons, most of which is returned to streams, is used daily for power plant cooling and industrial use. Population increases in the Washington area increases the strain on the supply of drinking water, leading to issues related to water quality, legacy pollution, emerging contaminants, and reliability and safety of drinking water supplies.

The Rappahannock Watershed is fed primarily by the Rappahannock River, Rapidan River, and Hazel River to the west of the planning district commission. Most of the Northern Neck Region falls within the bounds of this watershed.

The Rappahannock Watershed covers about 2,715 square miles and supports a variety of land uses: primarily fishing with manufacturing, light industrial, and retail applications in the Northern Neck Region. According to U.S. Geological Survey data, the Rappahannock Watershed (above the fall line) has the highest yield (load/unit area) of total nitrogen, total phosphorous, and total suspended solids of all the Chesapeake Bay tributary basins in Virginia, which contributes to localized dead zones (little or no oxygen) closer to the mouth of the Rappahannock each summer due to excess nutrient pollution. In addition, according to the Virginia Marine Resources Commission, commercial fish landings for shad and oysters in this area of the Rappahannock have declined precipitously since the early 1970s.

The Chesapeake Bay Coastal Watershed comprises the Chesapeake Bay and is 2,577 square miles, though only a tiny portion of the Northern Neck Region falls within it. The Great Wicomico and Corrotoman Rivers flow through the watershed. In addition, the Chesapeake Bay Coastal and the Potomac and the Rappahannock watersheds are part of the larger Chesapeake Bay Watershed. The Chesapeake Bay is the largest estuary in North America and the third largest in the world. More than 150 major rivers and streams flow into the bay's 64,299 square mile drainage basin, which covers six states (New York, Pennsylvania, Delaware, Maryland, Virginia, and West Virginia) and all of Washington, D.C. The bay is approximately 200 miles long from its northern headwaters in Havre de Grace, Maryland, to its outlet in the Atlantic Ocean by Virginia Beach, Virginia. The bay and its tidal tributaries have 11,684 miles of shoreline—more than the entire U.S. west coast. Approximately eight million acres of land in the Bay watershed are protected from development.

Since the early twentieth century, the Chesapeake Bay has experienced severe environmental degradation. Problems include:

- significant reductions in seagrass,
- reduced amounts of finfish and shellfish (especially oysters and crabs),
- seasonal depletions in dissolved oxygen, and
- increases in sedimentation.

Environmental concerns were voiced in the 1970s over the damage to critical habitats and the decline in water quality. Species in bay waters were being negatively affected, resulting in threats to commercial and recreational activities. Most marine scientists believe these changes are related to ecological stress due to increased human activities. Causes include deforestation, agriculture (including fertilizers), urbanization, pollution, and sewage. Between 1950 and 2019, there was an observed 119% increase in the watershed's population. In 2020, the Chesapeake Bay Program estimated that 18.4 million people lived in the Chesapeake Bay Watershed, a 0.23% increase from 2019. Experts predict the watershed's population will pass 22 million by 2050. (The Chesapeake Bay Program, https://www.chesapeakebay.net/state/population)

3.2.3 Physiography

The Northern Neck Planning District is part of the greater Atlantic Coastal Plain, a landscape characterized by gently rolling hills and valleys but also can be locally quite rugged where short, high-gradient streams have incised steep ravine systems. The Northern Neck Region falls within two sub-provinces of Virginia's Coastal Plain. Low slopes characterize the upland sub-province and gentle drainage divides. Steep slopes develop in areas dissected by streams and are also present where the upland meets the Potomac and Rappahannock Rivers. Elevations in the upland sub-province ranges from 60 to 250 feet. The other sub-province is the lowland sub-province, which is the flat, low-relief region along major rivers and near the Chesapeake Bay. Elevations in the lowland sub-province ranges from 0 to 60 feet. The fall line, which delineates the division between Coastal Plain and Piedmont, lies west of the Northern Neck Region.

3.2.4 Climate

The Northern Neck Region lies within the Atlantic Coastal Plain, with flat topography and sandy or muddy soil. This region has a humid subtropical climate, with hot summers and a short, mild, to cool winter. This humid subtropical climate is influenced by the Chesapeake Bay and the Atlantic Ocean, which moderate the weather but do not prevent ice formation almost every winter on the bay's northern tributaries. Mountains to the west produce blocking and steering effects on storms and air masses from the Great Lakes. The open water bodies that border the Northern Neck Region provide a buffer to atmospheric changes and allow for breezes that offset humidity.

Average high temperatures in the Northern Neck Region are about 76.1° F in the summer and 39.7° F in the winter. Precipitation is high and subject to seasonal influences, particularly along the coast. The average annual rainfall is approximately 45.19 inches, and the average annual snowfall is 11.5 inches.

3.2.5 Population

The total population for the Northern Neck Region is listed as 50,158 in 2020 using the newest population estimates from the U.S. Census Bureau's 2020 American Community Survey (Table 3-1: Population Statistics for the Northern Neck Region), which is a 1.2% increase in the total population since 2016. Two of the four counties experienced negative growth rates. Population projections for the Northern Neck Region are consistent with the U.S. Census population percent change from 2016 to 2020. Lancaster and Northumberland counties are projected to experience population decreases through 2050, while Richmond and Westmoreland counties are projected to experience population growth (Table 3-2: Population Projections for Northern Neck Region, 2030-2050). Projections predict that the population across the Northern Neck Region will remain stable.

Table 3-1: Population Statistics for the Northern Neck Region

Jurisdiction	Estimated Population, 2020	Percent Change in Population 2016-2020
Lancaster	10,919	-0.49%
Northumberland	11,839	-3.2%
Richmond	8,923	1.7%
Westmoreland	18,477	4.9%
NNPDC (total)	50,158	1.2%

Source: 2020 American Community Survey (ACS), 2020 Decennial Census

Table 3-2: Population Projections for the Northern Neck Region, 2030-2050.

Jurisdiction	2030	2040	2050
Lancaster	10,297	9,826	9,502
Northumberland	11,185	10,813	10,603
Richmond	8,469	8,400	8,457
Westmoreland	19,220	19,804	20,683
NNPDC (total)	49,171	48,843	49,245

Source: University of Virginia Weldon Cooper Center, Demographics Research Group. (2022). Virginia Population Projections. Retrieved from: https://demographics.coopercenter.org/virginia-population-projections

3.2.6 Race and Gender

Nearly the entire population (97.6%) of the Northern Neck Region reports being a single race according to U.S. Census Bureau's 2020 Population Estimates Program. The region's average population by race is 69.4% White alone, 27.0% Black or African American alone, and 0.8% Asian alone (Table 3-3: Racial Demographics of the Northern Neck Region). An average of 0.4% of the NNPDC population reported being other races alone and 2.3% reported being two or more races.

Table 3-3: Racial Demographics of the Northern Neck Region.

Jurisdiction	White Alone	African American Alone	Asian Alone	Other Races Alone	Two or More Races
Lancaster	69.3%	28.2%	0.9%	0.3%	1.4%
Northumberland	72.4%	24.8%	0.6%	0.4%	1.8%
Richmond	66.2%	30.0%	0.7%	0.7%	2.5%
Westmoreland	69.7%	25.0%	0.9%	0.1%	3.3%
NNPDC (average)	69.4%	27.0%	0.8%	0.4%	2.3%

Source: 2020 U.S. Census Bureau Population Estimates Program

In the region, there are slightly more males than females, with male persons accounting for 50.9% of the population and female persons make up the remaining 49.1% of the population. Richmond County has the largest difference in percentage of population that are females versus males, likely due to the presence of a correctional center in Haynesville. See Table 3-4: Gender Statistics for the Northern Neck Region.

Table 3-4: Gender Statistics for the Northern Neck Region.

Jurisdiction	Female	Male
Lancaster	52.0%	48.0%
Northumberland	50.7%	49.3%
Richmond	42.9%	57.1%
Westmoreland	50.6%	49.4%
NNPDC (average)	49.1%	50.9%

Source: 2020 U.S. Census Bureau Population Estimates

3.2.7 Language

About 3.6% of residents in the Northern Neck Region were foreign-born and 5.0% of persons age five and older speak a language other than English at home. See Table 3-5 Language Statistics for the Northern Neck Region. These statistics indicate there may be a portion of the region that may require special consideration when developing hazard reduction and outreach strategies for the community.

Table 3-5: Language Statistics for the Northern Neck Region

Jurisdiction	Foreign born persons, percent, 2016-2020	Language other than English spoken at home, percent of persons aged 5 years+, 2016-2020
Lancaster	4.5%	3.9%
Northumberland	0.8%	3.2%
Richmond	4.4%	8.9%
Westmoreland	4.6%	3.9%
NNPDC (average)	3.60%	5.0%

Source: 2020 American Community Survey (ACS) 5-Year Estimates

3.2.8 Age

Age can be used to identify certain groups of the population that have heightened risk to certain hazards. The 2020 U.S. Census Bureau's Population Estimates Program data shows that about 5.2% of the population in the Northern Neck Region is under the age of five and approximately 16.5% is under the age of 18 as illustrated in Table 3-6: Age Statistics for the Northern Neck Region. The regional age distribution is less than the Virginia total of 5.7% under the age of five and 21.8% under the age of eighteen. Additionally, the population that is 65 and older (30.2%) is double that of the Commonwealth's 16.3%.

Table 3-6: Age Statistics for the Northern Neck Region.

Jurisdiction	Persons under 5 years	Persons under 18 years	Persons between 18 and 65 years	Persons 65 years and over
Lancaster	3.7%	15.7%	43.9%	36.7%
Northumberland	3.8%	14.6%	45.1%	36.5%
Richmond	4.2%	16.9%	57.9%	21.0%
Westmoreland	5.0%	18.7%	49.9	26.4%
NNPDC (average)	5.2%	16.50%	49.2%	30.2%

Source: 2020 U.S. Census Bureau Population Estimates Program

The counties of the Northern Neck Region are recognized as popular retirement communities. Lancaster and Richmond Counties have seen a trend toward an aging population of long-term residents and newly relocated retirees. New residents are attracted to the region's proximity to water, good land and housing prices, low taxes, and rural character. As a result, there has been an increased demand for residential development, recreational opportunities, and medical services for senior citizens. During the recent recession, the Northern Neck Region had abundant listed residential properties. Consideration of the needs of the younger and older generations should influence the development of public awareness mitigation strategies.

3.2.9 Education

Data from the U.S. Census Bureau's 2020 Population Estimates Program approximate that about 86.5% of residents in the Northern Neck Region graduated from high school, and 25.7% hold bachelor's degrees or higher. Education levels are lower than Virginia averages (90.3% graduated from high school and 39.5% with bachelor's degrees or higher). Lancaster County has a higher education rate closer to the state average (33.5%). See Table 3-7: Education Statistics for the Northern Neck Region. Education levels and the population characteristics described in the previous paragraphs should influence mitigation and emergency management public outreach program development. The content and delivery of public outreach programs should be consistent with the audiences' needs and ability to understand complex information.

Table 3-7: Education Statistics for the Northern Neck Region

Statistics	High school graduate or higher, percent of persons aged 25 years+	Bachelor's degree or higher, percent of persons aged 25 years+
Lancaster	90.2%	33.9%
Northumberland	92.1%	32.6%
Richmond	80.1%	18.1%
Westmoreland	83.8%	18.30%
NNPDC (average)	90.3%	39.5%

Source: 2020 U.S. Census Bureau Population Estimates Program

3.2.10 Income

As of 2020, the median household income in the Northern Neck Region was approximately $56,565, 29.8% lower than the state average of $76,398, according to the U.S. Census Bureau. About 12.9% of residents within the region live below the poverty line. This rate is higher than the national rate of 11.6% in 2020 and higher than the state rate of 9.2%. Lancaster County has a higher median household income and per capita income than the other counties in the Northern Neck Region. Overall, the income statistics summarized in Table 3-8: Income Statistics for Northern Neck Region indicate that a significant portion of the population in the region may not have the resources available to undertake mitigation projects that require self-funding.

Table 3-8 Income Statistics for the Northern Neck Region.

Jurisdiction	Median household income (in 2020 dollars), 2016-2020	Per capita income in past 12 months (in 2020 dollars), 2016-2020	Persons in poverty, percent
Lancaster	$59,736	$48,280	10.3%
Northumberland	$59,437	$38,679	12.3%
Richmond	$53,298	$24,400	16.0%
Westmoreland	$53,790	$33,754	12.9%
NNPDC (average)	$56,565	$36,278	12.9%

Source: 2020 U.S. Census Bureau Population Estimates Program

3.2.11 Housing

As of July 1, 2021, there were an estimated 31,653 housing units in the Northern Neck Region according to the U.S. Census Bureau (Table 3-9: Housing Statistics for Northern Neck Region). Westmoreland County

has the most housing units and Richmond County has the least. Only 4.7% of the housing units in the region are multi-unit structures. Lancaster County has the most multi-unit structures (560 units) while Richmond County has the highest percentage in the region with 7.8% (308 units).

About 77% of residents own their homes. Northumberland County has the highest homeownership rate of 83.70% while Richmond County has the lowest at 74.40%. All the homeownership rates are significantly higher than the national average of 63.90% or the state average of 66.20%. When considering mitigation options, special attention should be given to the difference in capabilities between owners and renters. As previously stated, it is a "buyer's market" within the Northern Neck Region with many residential properties currently listed for sale. Many of these are "second" homes used as vacation or weekend homes by out-of-area owners from Northern Virginia or the Richmond Metropolitan area. A surge of homes was listed for sale during the recession during the past decade with many remaining on the market.

Table 3-9: Housing Statistics for the Northern Neck Region.

Jurisdiction	Housing units as of July 1, 2021	Owner-occupied housing unit rate	Median value of owner-occupied housing units
Lancaster	7,464	75.8%	$236,500
Northumberland	8,993	89.4%	$270,900
Richmond	3,952	64.2%	$193,700
Westmoreland	11,244	73.9%	$201,000
NNPDC	31,653	75.8%	$225,525

Source: 2020 U.S. Census Bureau Population Estimates

3.2.12 Business and Labor

Most Northern Neck Region's jurisdictions face unemployment and underemployment challenges. The decline in traditional industries and the growth in retirement and second-home development are changing the employment landscape. The area's unemployment rates remain like the U.S. rates but higher than Virginia's average (Table 3-10: Northern Neck Regional Unemployment Rates). The Virginia Employment Commission (VEC) projects that employment for the regional jurisdictions will increase by about 9.25% by 2024. It is worth noting that the United States and the Commonwealth of Virginia declared a state of emergency for the COVID-19 pandemic which contributed immensely to the steep increases in 2020, which carried into 2021.

Table 3-10: Northern Neck Regional Unemployment Rates.

Year	NNPDC	Virginia	United States
2013	7.00%	5.70%	7.40%
2014	6.70%	5.20%	6.20%
2015	5.70%	4.50%	5.30%
2016	4.90%	4.00%	4.90%
2017	4.60%	3.75%	4.35%
2018	3.90%	3.0%	3.90%
2019	3.70%	2.8%	3.70%
2020	6.10%	6.2%	8.10%
2021	4.60%	3.9%	5.40%

Source: Virginia Employment Commission, Economic Information & Analytics, Local Area Unemployment Statistics.

The rural nature of the communities in the Northern Neck Region is reflected in the top nine employment sectors summarized in Table 3-11: Top Nine Employment Sectors in the Northern Neck Region.

Table 3-11: Top Nine (9) Employment Sectors in the Northern Neck Region.

Industry	Employment
Local Government	2,059
Health Care and Social Assistance	1,607
Manufacturing	1,191
Accommodation and Food Service	907
Construction	817
State Government	672
Retail Trade	541
Other Services (except Public Administration)	512
Professional, Scientific, and Technical Services	415

Source: Virginia Employment Commission, Economic Information & Analytics, Community Profile – Northern Neck PDC – Update 09/07/2022

According to profiles developed by the Virginia Economic Development Partnership, major employers in the Northern Neck Region are listed by county below.

Lancaster County:

- Rappahannock General Hospital
- Lancaster County School Board
- Rappahannock Westminster Canterbury
- Walmart
- Tides Inn

Northumberland County:

- Northumberland County School Board
- Omega Protein
- Manufacturing Techniques Inc.
- County of Northumberland
- Carry On Trailer Corporation

Richmond County:

- Haynesville Correctional Institute
- Richmond County School Board
- Rappahannock Community College
- Riverside Regional Medical Center
- County of Richmond

Westmoreland County:

- Westmoreland County School Board
- Carry On Trailer Corporation
- County of Westmoreland
- Bevans Oyster Company
- Town of Colonial Beach Schools

Northern Neck Region:

- Westmoreland County School Board
- Haynesville Correctional Institute
- Rappahannock General Hospital
- Lancaster County School Board

3.2.13 Agriculture

Agriculture is a significant economic sector in the Northern Neck Region. Total agricultural sales exceed $99 million annually, with most of the revenue from the sales of crops, including those from nurseries, greenhouses, and vineyards. Major crops in the region include soybeans, corn, and wheat.

According to the 2010 U.S. Census, employment in Lancaster County related to farming, fishing, and forestry declined over 72% between 1990 and 2010 (253 jobs to 69 jobs). Table 3-12: Northern Neck Regional Agriculture summarizes agriculture in the Northern Neck Region based on 2017 Agricultural Census statistics.

Table 3-12: Northern Neck Regional Agriculture

Jurisdiction	Land in Farms (acres)	Total Value of Agricultural Products Sold	Total Value of Crops, including nursery and greenhouse crops	Total Value of livestock, poultry, and their products
Lancaster	16,238	$5,550,000	$5,101,000	$450,000
Northumberland	43,480	$20,052,000	$17,212,000	$2,840,000
Richmond	31,952	$16,814,000	$16,024,000	$790,000
Westmoreland	52619	$57,092,000	(D)*	(D)*
NNPDC	144282	99,508,000	**	**

Source: 2017 U.S. Census of Agriculture * USCA report withheld figures to avoid disclosing data for individual farms. **Totals unavailable secondary to (D) figures.

3.2.14 Transportation

The Northern Neck is a peninsula bound by two rivers and the Chesapeake Bay. As a result, transportation options are somewhat more limited than in surrounding counties.

US-360 is the main east-west route, while State Route-3 (SR-3) is the major north-south route in the Northern Neck Region. No interstate serves the Northern Neck Region directly, though Interstate 95, the central north-to-south road on the East Coast, is easily accessible via SR-3 (about 30 miles from the northernmost point in Westmoreland County). Likewise, US-17 is accessible via US-360 (across the Rappahannock River over Downing Bridge).

The closest commercial airports are in Richmond and Newport News (both approximately 55 miles away from the Northern Neck Region). Two general aviation facilities, Tappahannock Municipal Airport and Hummel Field, also serve the region. There is no rail service to the Northern Neck Region.

The Potomac, Rappahannock Rivers, and the Chesapeake Bay are all navigated by medium to large ships. However, the nearest major commercial ports are in Richmond and Norfolk, Virginia. Several grain barge facilities in the Northern Neck Region are used to transport agricultural products. In addition, many local marinas provide docking for pleasure craft along the shorelines of the Northern Neck jurisdictions.

A bridge on SR-3 crosses the Rappahannock River between White Stone in Lancaster County and Grey's Point in Middlesex County, with an additional bridge on US-360 spans the Rappahannock River at Richmond County and Tappahannock in Essex County. Seasonal (summer) passenger ferries run to Tangier Island. In addition, VDOT operates two ferries in the Northern Neck Region, one at Sunnybank in Northumberland County and the other at Merry Point in Lancaster County.

3.2.15 Infrastructure

3.2.15.1 Electricity

The Northern Neck Region is served by two electricity providers: Dominion Virginia Power and the Northern Neck Electric Cooperative (Touchstone Energy Cooperatives). The Virginia Electric & Power Company operates a Petroleum Power Plant in the Town of Warsaw, Richmond County. Dominion Energy, Inc operates the Montross Solar Power Plant just outside of the Town of Montross, located in Westmoreland County.

Northumberland County's Middle/High School was the first of its kind at the time to have a wind turbine installed on February 11, 2011. The turbine is primarily used as an educational tool, allowing the students to learn through hands-on and interactive curricula, and sponsored by the "Wind for Schools" initiative through the U.S. Department of Energy.

3.2.15.2 Heating and Gas

Quarles Propane & Heat in Burgess, NWP Energy in Kilmarnock, and Frederick Northup, Inc in Warsaw serve the Northern Neck Region area's heating and fuel needs.

3.2.15.3 Telephone

The primary telephone service provider for the Northern Neck Region is Verizon.

3.2.15.4 Public Water and Wastewater

Public water systems serve residents and businesses within the towns of Colonial Beach, Kilmarnock, Montross, and Warsaw. Wastewater treatment is available in the towns of Colonial Beach, Montross, Kilmarnock, and Warsaw. The Reedville Sanitary District and Montross-Westmoreland Sewer Authority provide wastewater services. Westmoreland County also serves Machado Neck, Coles Point, and Washington District areas with public wastewater services. Additionally, the Town of White Stone is in the process of constructing a wastewater treatment plant.

Private wells and onsite sewage systems serve the remainder of the Northern Neck Region. However, according to the 2016 Northumberland County Comprehensive Plan (currently undergoing an update), there is a high concentration of soils of poor quality for septic tanks located in the low-lying areas seaward of the Suffolk Scarp, in addition to other upland regions located along stream beds and banks. This poor soil quality challenges future development in this region.

3.2.15.5 Television

Cable television is available in the region through DirecTV, Dish TV, Breezeline, and Verizon Fios.

3.2.15.6 Internet

Internet access varies throughout the Northern Neck Region. Service providers include Breezeline (cable internet), Verizon (DSL), Brightspeed (fixed wireless), and HughesNet (satellite internet). In addition, in

2022, a public private partnership between All Points Broadband and the Northern Neck Planning District Commission---including the participation of Dominion Energy and the Northern Neck Electric Cooperative (NNEC)---began construction of Phase 1 of a new fiber network. Phase 2 will overlap Phase 1, with all work scheduled to be completed by the end of 2023. The result will be high-speed, wired Internet connectivity available to every household and business that does not currently have wired service in King George, Lancaster, Northumberland, Richmond, and Westmoreland Counties. Funding for the project was provided by private investments from Dominion Energy, All Points Broadband, and NNEC, plus public investment from all participating Counties, in addition to grants from the Virginia Telecommunication Initiative and the American Rescue Plan Act. Once the project is completed at the end of 2023, Virginia's Northern Neck peninsula will be the first rural region in the country with universal broadband coverage via wired services.

3.3 Disadvantaged Communities

It is essential to determine if any jurisdiction within the region would qualify as a Disadvantaged Community, formerly known as a special consideration community. Disadvantaged Communities are often eligible for grants for hazard mitigation and other community improvements on a preferential basis or with less stringent requirements for the non-federal, local share of grants. The Federal government defines a Disadvantaged Community as one with 3,000 or fewer individuals in a rural community and not within the corporate boundaries of a larger jurisdiction. In addition, to be categorized as a Disadvantaged Community, a jurisdiction must be economically disadvantaged, with residents having an average per capita annual income not exceeding 80% of the national per capita income based on the best available data. Further, Disadvantaged Communities must have a local unemployment rate that exceeds–by one percentage point or more–the most recently reported average national unemployment rate.

Currently, none of the jurisdictions in the Northern Neck Region meet all the above the criteria and are therefore not considered Disadvantaged Communities.

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Section 4
Adoption and Approval

Contents of this Section

4.1 44 CFR Requirement for Adoption and Approval

Requirement §201.6(c)(5): *[The local hazard mitigation plan shall include] documentation that the plan has been formally adopted by the governing body of the jurisdiction requesting approval of the plan (e.g., City Council, County Commissioner, Tribal Council). For multi-jurisdictional plans, each jurisdiction requesting approval of the plan* ***must*** *document that it has been formally adopted.*

Requirement §201.6(a)(3): *Multi-jurisdictional plans (e.g., watershed plans) may be accepted, as appropriate, as long as each jurisdiction has participated in the process … Statewide plans will not be accepted as multi-jurisdictional plans.*

4.2 Authority

Article VII. The Constitution of Virginia – Article VII. Local Government, gives authority to and defines the organization of communities, powers, duties, structure of governing bodies, procedures, and property use. Local governments in Virginia, including those in the Northern Neck Region, have a wide range of tools for implementing mitigation programs, policies, and actions. A hazard mitigation program can use any or all the four broad types of government powers granted by the Commonwealth of Virginia, which are (a) regulation, (b) acquisition, (c) taxation, and (d) spending. The scope of this local authority is subject to constraints. However, all of Virginia's political subdivisions must not act without proper delegation from the Commonwealth. Therefore, all power is vested in the Commonwealth and can only be exercised by local governments to the extent it is delegated (per Dillon's Rule).

Under the 1968 Virginia Area Development Act and modified by the Regional Cooperation Act, 21 Planning District Commissions were formed within the Commonwealth. Beginning in 2003, the Commonwealth of Virginia encouraged these twenty-one planning districts to lead the development of local hazard mitigation plans. These plans, which are required by the Disaster Mitigation Act of 2000 (DMA 2000), help local governments determine risks and vulnerabilities and identify projects to reduce these risks.

The communities of the Northern Neck Region have established a Local Emergency Planning Committee (LEPC) to address local emergency management issues. Resolution by the counties appoint members to the LEPC. The mission of this committee was closely aligned with the needs of a Mitigation Advisory

Committee. The Northern Neck Planning District Commission decided to utilize the existing LEPC as its Mitigation Advisory Committee. Representatives included:

- County administrators.
- Planning directors.
- Emergency services staff.
- School board officials.
- Local non-profits.
- State agencies such as the Virginia Department of Transportation.

4.2.1 Planning

According to State statutes, local governments in Virginia may create or designate a planning agency. The planning agency may perform several duties, including:

- Make studies of the area.
- Determine objectives.
- Prepare and adopt plans for achieving those objectives.
- Develop and recommend policies, ordinances, and administrative means to implement plans.
- Perform other related duties.

The requirement illustrates the importance of the planning powers of local governments that zoning regulations be made per a comprehensive plan. While the ordinance itself may provide evidence that zoning is being conducted "per a plan," a separate planning document ensures that the government is developing regulations and ordinances that are consistent with the community's overall goals.

Each county in the Northern Neck Region and the Town of Colonial Beach have dedicated planning staff, zoning regulations, and comprehensive plans. Town managers, with county assistance, perform planning and floodplain management functions. In addition, the towns in the study area all have planning commissions that meet regularly, receiving support as necessary from county planning departments.

4.3 Adoption and Approval Procedure

Upon the Federal Emergency Management Agency (FEMA) Region III determination that the Northern Neck Regional Hazard Mitigation Plan (the Plan) was “approvable pending adoption,” the Northern Neck Planning District Commission, Steering Committee, and Working Group will meet and recommended that the participating jurisdictions should adopt the Plan. Accordingly, the Plan will be submitted to the appropriate entity for each participating jurisdiction for review and adoption. The resulting Adoption Resolutions will then be forwarded to FEMA Region III for approval and the appropriate documentation will be added to the Plan appendices F: Adoption Resolutions and G: Approval Letters. FEMA will subsequently issue formal approval letters to the Virginia Department of Emergency Management (VDEM) for each participating jurisdiction that adopted the Plan. VDEM, in turn, will give approval letters to the approved jurisdictions.

4.4 Adoption Resolutions

Appendix F contains the signed Adoption Resolutions for the participating jurisdictions.

4.5 Approval Letters

Appendix G contains the formal Approval Letters from FEMA Region III for the participating jurisdictions.

Section 5
Planning Process

Contents of this Section

5.1 44 CFR Requirements for the Planning Process

Requirement §201.6(c) (1): *[The plan shall document] the planning process used to develop the plan, including how it was prepared, who was involved in the process, and how the public was involved.*

Requirement §201.6(b): *An open public involvement process is essential to the development of an effective plan. In order to develop a more comprehensive approach to reducing the effects of natural disasters, the planning process shall include:*

(1) An opportunity for the public to comment on the plan during the drafting stage and prior to plan approval
(2) An opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, and agencies that have the authority to regulate development, as well as businesses, academia, and other private and non-profit interests to be involved in the planning process; and
(3) Review and incorporation, if appropriate, of existing plans, studies, reports, and technical information.

5.2 Description of the Planning Process

5.2.1 How the Plan was Prepared (Overview)

The Northern Neck Regional Hazard Mitigation Plan (the Plan) was updated in accordance with the process established in the State and Local Mitigation Planning How-to Guides (FEMA Publication Series 386) produced by the Federal Emergency Management Agency (FEMA), and the requirements of 44 CFR part 201.6. The process established in the FEMA 386 guides includes four basic steps.

- Step 1: Organize resources
- Step 2: Assess risks
- Step 3: Update the 2017 mitigation plan
- Step 4: Implement the plan and monitor progress

5.2.2 Step 1: Organize Resources

The Northern Neck Regional Planning District Commission (NNPDC) was the lead agency to update the 2017 Northern Neck Regional Hazard Mitigation Plan. At the beginning of the process, a consultant firm, The Olson Group, LTD (OGL), was hired to provide technical support to the NNPDC and participating jurisdictions. In addition, several individuals and organizations worked together to update the Plan. These participants were organized into two different committees, the:

- Northern Neck Region Hazard Mitigation Steering Committee
- Northern Neck Region Hazard Mitigation Working Group Committee

The Northern Neck Region Hazard Mitigation Steering Committee (HMSC) was comprised principally of Planning District Commission personnel, selected county agency representatives, elected local representatives, and private concerned parties. This committee was formed to provide focus and leadership on behalf of all participating jurisdictions in the update of this Plan. HMSC meetings were regularly attended by other key county agency staff, including representatives from departments of planning, public works, and additional emergency management staff, in addition to Virginia Department of Emergency Management (VDEM) staff. The HMSC met at scheduled meetings as recorded, during the update process to receive progress reports from the consultant, review, and comment upon draft documents and procedures, implement relevant tasking, and coordinate efforts within their communities or organizations.

The Northern Neck Region Hazard Mitigation Working Group Committee (HMWG) comprises the county and local jurisdiction representatives in the Northern Neck Regional Planning District. The majority of the HMWG membership has regular interaction with the NNPDC. In addition, the HMWG comprises representatives from each participating jurisdiction's OEM, other governmental representatives, related agencies within the counties, and public entities that wish to participate in the update effort. The duties and responsibilities of the HMWG consisted of representing their communities' interests, serving as the point of contact between their communities and the HMSC, and completing necessary planning tasks, including data collection, identification of local mitigation actions, and reviewing the plan products of the HMSC.

With input and consensus from the HMWG, the HMSC identified the 13 most significant countywide hazards for a risk assessment to be completed. Table 5-1: Northern Neck Region Hazard Mitigation Steering Committee shows the primary membership of the HMSC.

Table 5-1: Northern Neck Regional Hazard Mitigation Steering Committee (HMSC) Members

Name	Organization
Jerry W Davis, AICP Executive Director	Northern Neck Region Planning District Commission
John Bateman, Regional Planner	Northern Neck Region Planning District Commission
Alex Eguiguren, Project Manager	Northern Neck Region Planning District Commission

Table 5-2: Northern Neck Region Hazard Mitigation Working Group (HMWG) Members lists the membership of the Northern Neck Region HMWG.

Table 5-2: Northern Neck Regional Hazard Mitigation Working Group (HMWG) Members

Name	Organization
Jerry W Davis, AICP Executive Director	Northern Neck Planning District Commission
John Bateman, Senior Regional Planner	Northern Neck Planning District Commission
Alex Eguiguren, Project Manager	Northern Neck Planning District Commission
Luttrell Tadlock, County Administrator	Northumberland County
Drew Bayse, Asst. County Administrator	Northumberland County
Wes Packett, Director of Emergency Services	Northumberland County
Phillip Marston, Zoning Administrator	Northumberland County
R. Morgan Quicke, County Administrator	Richmond County
Mitch Paulette, Chief, Department of Emergency Services	Richmond County
Hope Mothershead, Planning and Zoning Administrator	Richmond County
Norm Risavi, County Administrator	Westmoreland County
Philip Marsten, Zoning Administrator	Westmoreland County
Bill Cease, Director of Emergency Management and Technology	Westmoreland County
Beth McDowell, Director of Planning and Community Development	Westmoreland County
Darrin Lee, Assistant Planning Director	Westmoreland County
Olivia Hall, Environmental Codes Compliance Officer	Lancaster County
Don Gill, County Administrator	Lancaster County
Matthew Smith, Chief of Emergency Services	Lancaster County
Jim Canter, Building Official	Lancaster County
Bill Farrell, Director of Planning and Land Use	Lancaster County
Marshall Sebra, Planning-Zoning Director	Town of Kilmarnock
Susan Cockrell, Town Manager	Town of Kilmarnock
Julie Harris, Mayor	Town of Irvington
Laurel Taylor, Town Clerk	Town of Irvington
Patrick Frere, Town Manager	Town of White Stone
Melinda George, Town Clerk	Town of White Stone
India Adams-Jacobs, Town Manager	Town of Colonial Beach
J.C. LaRiviere, Grants Writer	Town of Colonial Beach
Matthew Smith, GIS/Asset Manager	Town of Colonial Beach

Name	Organization
Joseph Quesenberry, Town Manager	Town of Warsaw
Melissa Coates, Director of Planning and Community Development	Town of Warsaw
Patricia Lewis, Town Manager	Town of Montross
Matt Dalon, Program Manager, Virginia Coastal Resilience Master Plan	Virginia Department of Conservation and Recreation
Lydia Bienlien, Sea Grant Commonwealth Coastal & Marine Policy Fellow – Dam Safety and Floodplain Management	Virginia Department of Conservation and Recreation
Stacey Farinholt, Program Admin Specialist – Dam Safety and Floodplain Management	Virginia Department of Conservation and Recreation
Mark Killgore, Lead Dam Safety Engineer	Virginia Department of Conservation and Recreation
Angela Davis, Floodplain Program Planner	Virginia Department of Conservation and Recreation
Chris Bruce, All Hazards Planner	VDEM, Region 5 Representative
Shannon Burke, Mitigation Planner	FEMA, Region 3 Representative
Michele Zucker, Supervisory Community Planner	FEMA, Region 3 Representative
Shannon Hutton, Geographer	Old Dominion University
Montrose Gray, Assistant Director of the Coastal Policy Center	William & Mary University

5.2.2.1 Meeting Schedule

There were several meetings conducted during the update of the Plan per Table 5-3: Committee Meeting Schedule. The meetings focused primarily on the review of work-in-progress for the update of the Plan. However, in some cases, the meetings were essentially working sessions for the current needs of the update such as verification of hazard priorities, processes validation and draft documents review.

Table 5-3: Committee Meeting Schedule

Date	Meeting	Attendees
June 23, 2022	Introductory Meeting	NNPDC, FEMA, VDEM, OGL
July 15, 2022	HM Steering Committee Meeting	HMSC, OGL
July 29,2022	HM Working Group Meeting	HMWG, OGL
August 12, 2022	HM Working Group Meeting & Public Input Meeting	HMWG, OGL
September 9, 2022	HM Working Group Meeting & Public Input Meeting	HMWG, OGL
September 19, 2022	Northumberland County Jurisdictional Interview	Locality representatives, J. Bateman, OGL
September 20, 2022	Richmond County Jurisdictional Interview	Locality representatives, J. Bateman, OGL
September 20, 2022	Westmoreland County Jurisdictional Interview	Locality representatives, J. Bateman, OGL

Date	Meeting	Attendees
June 23, 2022	Introductory Meeting	NNPDC, FEMA, VDEM, OGL
September 20, 2022	Lancaster County Jurisdictional Interview	Locality representatives, J. Bateman, OGL
September 21, 2022	Town of Montross Jurisdictional Interview	Locality representatives, J. Bateman, OGL
September 22, 2022	Town of Irvington Jurisdictional Interview	Locality representatives, J. Bateman, OGL
September 22, 2022	Town of Warsaw Jurisdictional Interview	Locality representatives, J. Bateman, OGL
September 22, 2022	Town of Colonial Beach Jurisdictional Interview	Locality representatives, J. Bateman, OGL
September 22, 2022	Town of Kilmarnock Jurisdictional Interview	Locality representatives, J. Bateman, OGL
September 23, 2022	HM Steering Committee, HM Working Group Meeting	HMSC, HMWGC, OGL
October 7, 2022	HM Working Group Meeting & Public Input Meeting	HMWGC, OGL
October 7, 2022	Town of White Stone Jurisdictional Interview	Locality representatives, J. Bateman, OGL
November 16, 2022	HM Steering Committee Meeting	HMSC, OGL
February 3, 2023	HM Steering Committee Meeting	HMSC, OGL, VDEM
February 3, 2023	HHPD Information Meeting	HMSC, OGL, VDEM, DCR

Appendix C.1 contains documentation for these meetings including agendas, attendance rosters, presentation materials, and meeting notes where appropriate.

5.2.3 Step 2: Assess Risks

Under general mitigation planning practices and the process FEMA established in FEMA Local Mitigation Planning Handbook and FEMA Local Mitigation Planning Policy Guide, the risk assessment forms the basis for this Plan by quantifying and rationalizing information about how natural and human-caused hazards affect the Northern Neck Region and its participating jurisdictions.

The processes used to complete the hazard identification and risk assessment update and the results of these activities are described in Sections 6, 7, Appendices D and E. The assessment determined several aspects of the risks of hazards faced by the region and the participating jurisdictions:

- The natural hazards that are most likely to affect the region
- How often hazards are expected to impact the region
- The expected severity of the hazards
- Which areas of the region are likely to be affected by hazards
- How the regions assets, operations, people, and infrastructure may be impacted by hazards
- How private and commercial assets, operations, infrastructure may be impacted by hazards
- The expected future losses if the risk is not mitigated

The HMSC first verified the already identified hazards and added three additional to be assessed, with the potential to impact the region. Next, using a rating system called the Calculated Priority Risk Index (CPRI), explained in Section 6, the HMSC reassessed the region-wide hazards considered the most relevant for

this planning process. The results of this selection process were discussed and validated by the HMSC. These hazards are described in the Plan's Hazard Identification, Profiling, and Ranking portion (Section 6).

As a result, the HMSC and HMWG were able to make qualitative determinations that allowed further refinement of the focus of this plan update to thirteen hazards: tornado, severe weather, coastal flooding, riverine flooding, wildfire, winter storm, hurricane/tropical storm, coastal erosion, pluvial flooding, landslide, drought, heatwave, and earthquake. The HMSC considers these to represent the most predominant risks to the region. The results of this secondary selection process were also discussed and validated by the HMWG.

For each of these hazards, the consultants performed detailed risk assessments, i.e., calculations of future expected damages, expressed in dollars where appropriate. The risk assessment results were also made available to the public during the public presentations (The entire process and results of this work are presented in the Risk Assessment portion of this Plan (Section 7).

5.2.4 Step 3: Update the Mitigation Plan

The Plan has a developed series of goals and objectives directly linked to updated risk assessment results. An updated capability assessment was also conducted to help determine the capacity of the region and the participating jurisdictions to implement hazard mitigation projects. In addition, the HMSC and the consultant worked individually with the participating jurisdictions to identify potential problems and mitigation solutions to be included in the updated Mitigation Action Plan. The Mitigation Action Plan was reviewed and validated by the HMSC and HMWG. The results of these efforts are detailed in Sections 8 and 9.

5.2.5 Step 4: Implement the Plan and Monitor Progress

Finally, the HMSC identified a process for on-going monitoring and revisions to the Plan over the next five years. Section 10 details the resulting monitoring, evaluation, and plan update procedures. This step was also reviewed and validated by the HMWG.

5.3 Involvement by the Public and Other Interested Parties

During the update of this Plan, the public was involved by requesting their participation in public presentations/meetings, providing drafts of the Plan for review, and inviting comments on the contents of the Plan. For each meeting, the public and interested parties were notified of the meetings via public notice in area newspapers, notice on the NNPDC website, and emails to interested groups. It is to be noted that while the public was invited via website announcement and open public meeting notice as required, no comments were provided by the public for incorporation into the plan and no participants from the public attended any of the Public Input meetings. The public outreach, meeting attendance lists, public presentations and meetings are detailed in Table 5-4: Public Involvement. In addition, continued outreach by the NNPDC and jurisdictional staff, including public education and work with stakeholders and other interested parties between now and the next five-year Plan update, will be included as part of the Mitigation Action Plan in Section 9.

Table 5-4: Public Involvement

Date	Type of Involvement	Meeting Location
July 2022 – updated throughout planning process	Website with hazard mitigation and Plan development information posted	https://www.northernneck.us/regional-northern-neck-hazard-mitigation-plan/

Date	Type of Involvement	Meeting Location
August 12, 2022	Public meeting with presentation and open discussion	Microsoft TEAMs Virtual Online Meeting
September 9, 2022	Public meeting with presentation and open discussion	Microsoft TEAMs Virtual Online Meeting
October 7, 2022	Public meeting with presentation and open discussion	Microsoft TEAMs Virtual Online Meeting
September 19, 2022	Press release regarding hazard mitigation and Plan development issued	Issued to Northern Neck News and The Rappahannock Record
September 29, 2022	Press release regarding hazard mitigation and Plan development issued	Rappahannock Record
November 2, 2022	Plan posted to website for public comment	https://www.northernneck.us/regional-northern-neck-hazard-mitigation-plan/
December 15, 2022	Second draft forwarded to Working Group members via email.	Not Applicable
February 6, 2023	Final Draft Plan distributed to surrounding communities and agencies for viewing.	Via email and NNPDC website

As part of the development of the Plan, Floodplain Administrators were engaged in Plan update and review in many jurisdictions. Involvement of Floodplain Administrators in the Northern Neck Region is shown in Table 5-5: Northern Neck Regional Floodplain Administrator Involvement. Additional outreach to Floodplain Administrators should result in enhanced participation in the next Plan update.

Table 5-5: Northern Neck Regional Floodplain Administrator Involvement

Jurisdiction	Floodplain Administrator Name	Method of Involvement in Plan
Lancaster County	Don Gill	Active Working Group Member
Town of Irvington	Justin Nelson	Participated in the Town of Irvington's jurisdictional interview and mitigation actions update.
Town of Kilmarnock	Marshall Sebra	Active Working Group Member Participated in the Town of Kilmarnock's jurisdictional interview and mitigation actions update.
Town of White Stone	Patrick Frere	Active Working Group Member Participated in the Town of White Stone's jurisdictional interview and mitigation actions update.
Northumberland County	Phillip Marsten	Active Working Group Member Participated in Northumberland County's jurisdictional interview and mitigation actions update.
Richmond County	Hope Mothershead	Active Working Group Member

Jurisdiction	Floodplain Administrator Name	Method of Involvement in Plan
Lancaster County	Don Gill	Active Working Group Member
		Participated in Richmond County's jurisdictional interview and mitigation actions update.
Town of Warsaw	Joseph Quesenberry	Active Working Group Member Participated in the Town of Warsaw's jurisdictional interview and mitigation actions update.
Westmoreland County	Beth McDowell	Active Working Group Member Participated in Westmoreland County's jurisdictional interview and mitigation actions update.
Town of Colonial Beach	India Adams-Jacobs Kaylin DeBernard (secondary)	Participated in the Town of Colonial Beach's jurisdictional interview and mitigation actions update.
Town of Montross	Patricia Lewis	Active Working Group Member Participated in the Town of Montross's jurisdictional interview and mitigation actions update.

Copies of the plan were made available to the Northern Neck Region's neighbors, the George Washington Regional Commission, and the Middle Peninsula Planning District Commission for their review and input. In addition, the plan was shared with the Rappahannock Community College, the College of William & Mary, and Old Dominion University.

Minutes of meetings with associated attendee lists, and copies of relevant correspondence are included in Appendix C.

Beyond this, email, and phone solicitations for involvement by potential stakeholders and interested parties, including non-profits, area utilities, school boards, significant employers, and others, were conducted during Plan development and reviews.

Relevant correspondence is contained in Appendix C3. Response to this outreach was sparse, but outreach by the NNPDC, including public education and work with stakeholders and other interested parties between now and the next five-year Plan update, should improve such involvement during the Plan update.

5.4 Review and Incorporation of Plans, Studies, Reports, and Other Information

The Northern Neck Regional Hazard Mitigation Plan 2023 Update incorporates information from multiple other plans, studies, and reports. Information about how these plans and studies were incorporated into the plan update is found in Sections 7, 8, and 9. These sections are where relevant and specific data sources are provided. Complete reference information is provided in Appendix B: Sources. The progress of plan implementation, including the monitoring schedule, evaluation of progress, success, lessons learned, and updates, are included in Section 8: Capability Assessment and Section 10: Plan Monitoring and Maintenance.

Section 6
Hazard Identification, Profiling, and Ranking

Contents of this Section

6.1 44 CFR Requirement for Hazard Identification and Profiling

Requirement §201.6(c)(2)(i): *The risk assessment shall include a description of the location and extent of all natural hazards that can affect the jurisdiction. The plan shall include information on previous occurrences of hazard events and on the probability of future hazard events.*

6.2 Hazard Identification

The Hazard Vulnerability Analysis aims to provide an overview of how various natural hazards impact Virginia's Northern Neck Region.

The Hazard Identification and Risk Assessment (HIRA) assesses all natural hazards deemed a threat through previous Hazard Identification Risk Assessments and the qualitative priorities of the Local Emergency Planning Committee (LEPC), which serves as the plan update's Working Group Committee. The analysis presented in Section 7 uses an all-hazards identification, classification, and vulnerability indexing process to ensure hazard analysis is comprehensive and as qualitative as possible based on all available data sources. The HIRA provides information to allow the planning district commission and its communities to understand local hazards and the risks they pose to people, property, and infrastructure so that mitigation goals, strategies, actions, and projects to reduce risk exposure to dangers will make the Northern Neck Region more resilient.

For the HIRA, a natural hazard is a physical event or condition that can cause fatalities, injuries, property and infrastructure damage, agricultural loss, damage to the environment, interruption of business, or other types of harm or loss.

Identifying the risk and vulnerability of a community is critical when determining how to allocate finite resources to carry out feasible and appropriate mitigation actions. The hazard analysis involves identifying all the hazards that potentially threaten the Northern Neck Region and then analyzing them to determine the degree of threat posed by each hazard and hazard vulnerability. Addressing risk and vulnerability through hazard mitigation measures will reduce societal, economic, and environmental exposure to natural hazard impacts.

The Northern Neck Region is exposed to many natural hazards affecting people and property. The following hazard categories were reviewed during the 2023 plan update process, where the Working Group agreed that the 2017 plan hazards were still relevant with the addition of landslide, heat wave, and pluvial flooding:

- Tornado
- Severe Weather (high winds, hail, lightning)
- Coastal Flooding
- Riverine Flooding
- Wildfires
- Winter Storm
- Hurricane/Tropical Storm
- Coastal Erosion
- Pluvial Flooding
- Landslide
- Drought
- Heatwave
- Earthquake

The impact of each natural hazard is presented in each respective hazard section. Coastal Erosion is excluded from Table 6-1 as available data is insufficient to report to parameters.

Table 6-1: Hazard Events for Northern Neck Regional Counties (date range as noted)

Hazards	Reported Events	Property Damage	Crop Damage	Deaths	Injuries
Lancaster	143			0	3
Tornado	9 (1975-2022)	$6.58 million	$0.00	0	0
Severe Weather (hail, lighting, severe wind)	64 (1955-2022)	$3.55 million	$0.00	0	3
Coastal Flooding	14 (1996-2022)	$1.87 million	$0.00	0	0
Riverine Flooding	5 (1996-2022)	$112,000***	$0.00	0	0
Wildfire	52 (2009-2022	$1000**	66.3 acres	0	0
Winter Storms	34 (1996-2022)	$40,000	$0.00	0	0
Hurricanes/Tropical Storms	7 (1996-2022)	$722,000	$503,000	0	0
Pluvial Flooding	10 (1996-2022)	Not available	Not available	0	0
Landslide	0* (2010-2019)	$0.00	$0.00	0	0
Drought	3 (1996-2022)	$0.00	$3.88 million	0	0
Heat Wave	3 (1996-2022)	$0.00	$0.00	0	0
Earthquake	3** (1950-2022)	$0.00	$0.00	0	0
Northumberland	164			0	9
Tornado	8 (1969-2022)	$1.56 million	$0.00	0	9
Severe Weather (hail, lightning, strong wind)	68 (1976-2022)	$18,262,979.95	$0.00	0	0
Coastal Flooding	14 (1996-2022)	$20.63 million	$0.00	0	0
Riverine Flooding	8 (1996-2022)	$112,000***$0.00	$0.00	0	0
Wildfire	38 (2009-2022)	$3,100	120 acres	0	0
Winter Storms	43 (1996-2022)	$40,000	$0.00	0	0
Hurricanes/Tropical Storms	7 (1996-2022)	$917,000	$1.15 million	0	0

Hazards	Reported Events	Property Damage	Crop Damage	Deaths	Injuries
Pluvial Flooding	10 (1996-2022)	Not available	Not available	0	0
Landslide	0* (2010-2019)	$0.00	$0,00	0	0
Drought	2 (1996-2022)	$0.00	$3 million	0	0
Heat Wave	3 (1996-2022)	$0.00	$0.00	0	0
Earthquake	1** (1950-2022)	$0.00	$0.00	0	0
Richmond	199			0	5
Tornado	8 (1996-2022)	$3.4 million	$0.00	0	2
Severe Weather (hail, lighting, strong wind)	102 (1958-2022)	$335,000	$5,000	0	3
Coastal Flooding	3 (1996-2022)	$1.8 million	$0.00	0	0
Riverine Flooding	17* (1996-2022)	$492,000***	$0,00***	0	0
Wildfire	18 (2009-2022)	$63,000	25.3 acres	0	0
Winter Storms	48 (1996-2022)	$95,000	$0.00	0	0
Hurricanes/Tropical Storms	2 (1996-2022)	$129, 000	$812,000	0	0
Pluvial Flooding	13 (1996-2022)	$664,000	$200,000	0	0
Landslide	0* (2010-2019)	$0.00	$0.00	0	0
Drought	2 (1966-2022)	$0.00	$2 million	0	0
Heat Wave	3 (1996-2022)	$0.00	$0.00	0	0
Earthquake	1** (1950-2022)	$0.00	$0.00	0	0
Westmoreland	179			0	0
Tornado	36 (1950-2022)	$12.73 million	$78, 000	0	16
Severe Weather (thunderstorm, hail, lighting, and winds)	211 (1955-2022)	$19.46 million	$5,000	0	6
Coastal Flooding	5 (1996-2022)	$220,000	$0.00	0	0

Hazards	Reported Events	Property Damage	Crop Damage	Deaths	Injuries
Riverine Flooding	12* (1996-2019)	$101,000***	$0.00***	0	0
Wildfire	33 (2009-2022)	$0	75 acres	0	0
Winter Storms	48 (1996-2022)	$85,000	$0.00	0	0
Hurricanes/Tropical Storms	4 (1996-2022)	$515,000	$950,000	0	0
Pluvial Flooding	10 (1996-2022)	$195,000	$55,000	0	0
Landslide	1 (2010-2019)	$0.00	$0.00	0	0
Drought	2 (1996-2022)	$0.00	$5 million	0	0
Heat Wave	3 (1996-2022)	$0.00	$0.00	0	0
Earthquake	1* (1950-2022)	$0.00	$0.00	0	0

Source: NOAA NCEI Storm Events Database; *FEMA National Risk Index; **VDOF Fire Incident Database ***HAZUS

Table 6-2: Total Unique Hazard Events in the Northern Neck Region (as of June 30, 2022)

Hazard	Total Unique Events
Tornado	36
Severe Weather	211
Coastal Flooding	18
Riverine Flooding	17*
Wildfire	141
Winter Storm	53
Hurricane/Tropical Storm	8
Coastal Erosion	Not available
Pluvial Flooding	22
Landslide	1
Drought	3
Heatwave	3
Earthquake	1
Total	497

Source: NOAA NCEI Storm Events Database; *FEMA National Risk Index. **USGS Earthquake Database ***HAZUS

This table only summarizes the events found in sources such as the NCEI Database, NRI, HAZUS, VDOF, and USGS. These estimates underrepresent the actual damages since some hazard losses go unreported

or are challenging to quantify accurately; this is especially true with crop damage. Therefore, other best-available national and local data sets were utilized in some hazard sections to quantify losses.

6.2.1 Presidential Disaster Declarations

The Federal Emergency Management Agency (FEMA) maintains the National Disaster Declarations Summary dataset. The first disaster declared in the national dataset was in 1953 and was supplemented with the Robert T. Stafford Disaster Recovery Act and related Department of Homeland Security regulations. For an event to be declared a disaster by FEMA, the Governor of Virginia must declare a state of emergency and then formally demonstrate to the President that Commonwealth and local government resources to support disaster recovery are exhausted, necessitating Federal assistance. Table 6-3 shows the FEMA Disaster Declarations Summary for events declared within the Northern Neck Region from 1953 to June 30, 2022. Eighteen significant disaster declarations have been since 1969, and eight emergency declarations since 1993, totaling 26. In addition, six emergency declarations have been made since the update in 2017.

Table 6-3: FEMA Declared Disasters for the Northern Neck Region (1953-June 30, 2022)

Disaster Number	Disaster Type	Incident Type	Incident Begin Date	Programs Declared			
				IH	IA	PA	HM
274	Major Disaster	Hurricane	8/23/1969	No	Yes	Yes	Yes
339	Major Disaster	Flood	6/23/1972	No	Yes	Yes	Yes
525	Major Disaster	Freezing	1/26/1977	No	Yes	No	No
3046	Emergency	Drought	7/23/1977	No	No	Yes	Yes
755	Major Disaster	Flood	11/9/1985	No	Yes	Yes	Yes
3112	Emergency	Snow	3/13/1993	No	No	Yes	Yes
1014	Major Disaster	Snow	2/8/1994	No	No	Yes	Yes
1086	Major Disaster	Snow	1/6/1996	No	No	Yes	Yes
1135	Major Disaster	Hurricane	9/5/1996	No	Yes	Yes	Yes
1293	Major Disaster	Hurricane	9/13/1999	No	Yes	Yes	Yes
3147	Emergency	Hurricane	9/13/1999	No	No	Yes	No
1318	Major Disaster	Severe Storm(s)	1/25/2000	No	No	Yes	Yes
1491	Major Disaster	Hurricane	9/18/2003	Yes	Yes	Yes	Yes
3240	Emergency	Hurricane	8/29/2005	No	No	Yes	No
1661	Major Disaster	Severe Storm(s)	8/29/2006	No	No	Yes	Yes
4024	Major Disaster	Hurricane	8/26/2011	No	No	Yes	Yes
3329	Emergency	Hurricane	8/26/2011	No	No	Yes	No
4045	Major Disaster	Severe Storm(s)	9/8/2011	No	No	Yes	Yes
4092	Major Disaster	Hurricane	10/26/2012	Yes	No	Yes	Yes
3359	Emergency	Hurricane	10/26/2012	No	No	Yes	No
4401	Major Disaster	Hurricane	09/08/2018	No	No	Yes	Yes
3403	Emergency	Hurricane	09/13/2018	No	No	Yes	Yes
4411	Major Disaster	Hurricane	10/09/2018	No	No	Yes	No
3448	Emergency	Pandemic	01/20/2020	No	No	Yes	No
4512	Major Disaster	Pandemic	01/20/2020	No	Yes	Yes	Yes
4602	Major Disaster	Winter Storms	02/11/2021	No	No	Yes	Yes

FEMA Disaster Declarations Summary – Open Government Dataset. https://www.fema.gov/openfema-data-page/disaster-declarations-summaries-v1

6.3 Overview of the Type and Location of Hazards that can affect the Northern Neck Region

6.3.1 Tornados

A tornado is a violently rotating column of air extending from a thunderstorm to the ground. The rotating column of air often resembles a funnel-shaped cloud. Winds are typically less than 100 mph, with the most violent tornado wind speeds exceeding 250 mph. The widths of most Virginia tornados are generally several yards across, but the path length can vary from a few hundred yards to dozens of miles long. A tornado moves at speeds between 30 and 125 miles per hour (mph) and can generate winds that reach 300 mph.

6.3.1.1 Type and Location

The total number may be higher as incidents may occur over areas with sparse populations or may not cause any property damage. The Tornado season is typically March through August; however, tornados can occur in any month.

In Virginia, peak tornado activity is in July since hot, humid conditions stimulate tornado growth. Strong tornadoes may be produced by thunderstorms and are often associated with the passage of hurricanes. Tornados may occur in any location across the Northern Neck Region, as seen in the figure below.

In the United States, tornadoes have been classified on the Fujita Scale, assigning numeric scores from zero to five (or higher) based on the severity of observed damages. The traditional Fujita scale, introduced in 1971, was used to rate the intensity of tornadoes after that and was also applied to previously documented tornadoes. The scale assigns numerical values for wind speeds inside the tornado according to the type of damage and degree.

Most tornadoes are F0 and F1, resulting in widespread minor damage. Low-intensity tornadoes will cause localized transportation route disruption due to the amount of debris, and utilities can also be out of service for several days due to downed power and phone lines. A tornado's intense power can destroy buildings, primarily manufactured homes, down power lines, and cause significant agricultural damage.

In February 2007, an "enhanced" Fujita scale was implemented with somewhat lower wind speeds at the higher F-numbers and more thoroughly refined structural damage indicator definitions. In addition, it was developed to align tornado wind speeds with associated damages with better accuracy. Figure 6-1 demonstrates the "EF" tornado scale presented by the National Weather Service (NWS).

Figure 6-1: EF Rating Scale

EF Rating	Wind Speeds	Expected Damage		
EF-0	65-85 mph	'Minor' damage: shingles blown off or parts of a roof peeled off, damage to gutters/siding, branches broken off trees, shallow rooted trees toppled.		
EF-1	86-110 mph	'Moderate' damage: more significant roof damage, windows broken, exterior doors damaged or lost, mobile homes overturned or badly damaged.		
EF-2	111-135 mph	'Considerable' damage: roofs torn off well constructed homes, homes shifted off their foundation, mobile homes completely destroyed, large trees snapped or uprooted, cars can be tossed.		
EF-3	136-165 mph	'Severe' damage: entire stories of well constructed homes destroyed, significant damage done to large buildings, homes with weak foundations can be blown away, trees begin to lose their bark.		
EF-4	166-200 mph	'Extreme' damage: Well constructed homes are leveled, cars are thrown significant distances, top story exterior walls of masonry buildings would likely collapse.		
EF-5	> 200 mph	'Massive/incredible' damage: Well constructed homes are swept away, steel-reinforced concrete structures are critically damaged, high-rise buildings sustain severe structural damage, trees are usually completely debarked, stripped of branches and snapped.		

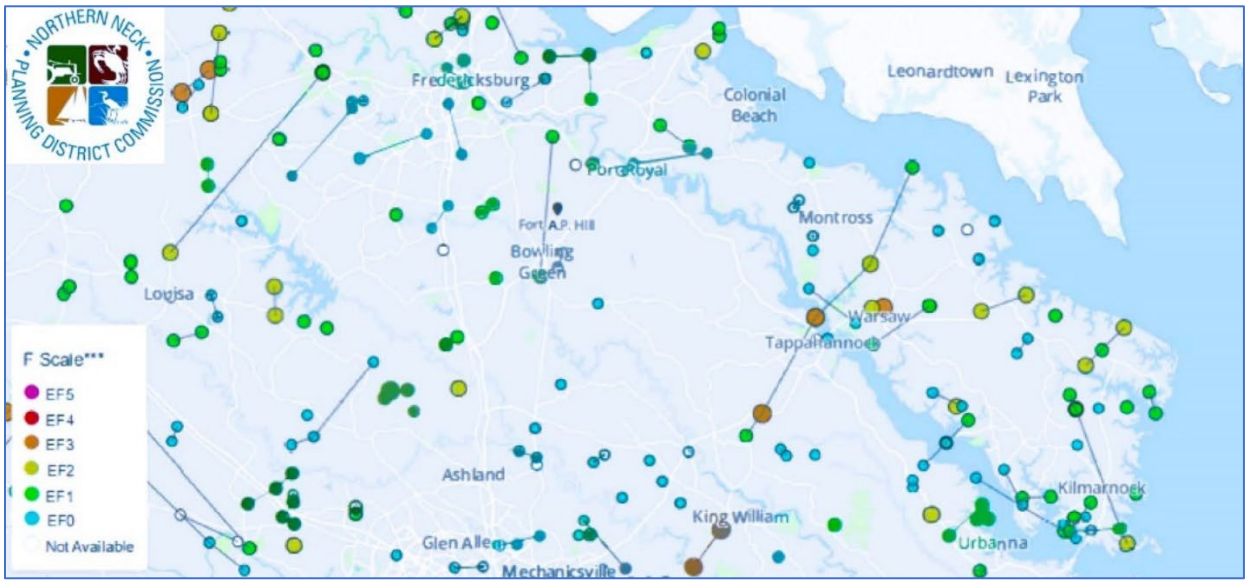
Fujita scale	Wind speeds (3-s gust)		Enhanced Fujita scale	Wind speeds (3-s gust)	
	m s^{-1}	mph		m s^{-1}	mph
F0	20–35	45–78	EF0	29–38	65–85
F1	36–52	79–117	EF1	38–49	86–110
F2	53–72	118–161	EF2	50–60	111–135
F3	73–93	162–209	EF3	61–74	136–165
F4	94–117	210–261	EF4	74–89	166–200
F5	118–142	262–317	EF5	>89	>200

Source: https://www.weather.gov/images/cae/EF-Ratings.jpg

6.3.1.2 – Previous Occurrences

According to the NCEI storm events database, there have been 36 recorded tornado events since 1950, which includes two funnel clouds and two waterspouts. These tornado events have resulted in a total of $12.73 million in property damage and $78, 000 in crop damage. Figure 6-2 shows the location of historic tornado tracks and touch downs in the Northern Neck Region. Table 6-4 lists the most significant of these events along with recent events not recorded by the NCEI database.

Figure 6-2: Tornadoes in the Northern Neck Region 1950-2022



Source: NOAA and News Leader: Tornado Archive: https://data.newsleader.com/tornado-archive/

Table 6-4: Previous Occurrences of Tornado Events

Event Date	Hazard History
May 10, 1990	Lancaster County. This tornado traveled in an east-northeast direction from two miles southwest of White Stone and ended about two miles east-northeast of White Stone. The path was just over four miles long, and it was intermittent. The most significant damage occurred in the center of White Stone. In addition to considerable tree damage, three buildings were heavily damaged, five stores lost plate-glass windows, and trees destroyed a mobile home.
August 06, 1993	White Stone. At 1515 EDT, a tornado moved northeast through White Stone. Trees were broken and knocked down damaging hones.
June 24, 1996	Westmoreland County. A brief tornado touched down at Westmoreland State Park. Numerous trees and power lines were downed throughout the park. In addition, the roofs of three cabins were damaged by downed trees. One cabin suffered the most damage as a large tree trunk crashed through the roof, damaging the rafters and inside walls of the kitchen and bedroom.
September 10, 1997	Northumberland County. Tornado damage occurred from Burgess to Oyster Cove. The most significant damage was found in the Edwardsville area, where nearly 20 mobile homes were severely damaged or destroyed. Numerous trees were downed or suffered damage. Nine, mostly minor, injuries were reported.
	Westmoreland County. The same storm which produced the Edwardsville storm produced a second weaker tornado in Hague. One house sustained minor damage, and numerous trees were sheared off or uprooted.
September 10, 1997	Northumberland County. A tornado damaged five homes, with a large porch on one house and a garage/breezeway on another home destroyed. Damage to 2 other homes was primarily incidental and caused by flying debris. The fifth home sustained siding and substantial roof damage. Several boats were damaged/overturned at a local marina. One rowboat near the initial damage area was lifted and tossed 300-400 yards from its tied-down position. Two cars were damaged, one severely. Several trees were severely damaged; one tree was uprooted by an airborne boat. There were no injuries or fatalities. Property damage totaled about $150,000.
May 25, 2004	Lancaster County. A waterspout formed over Carters Creek and came ashore at Irvington Marina as a tornado. A boat house was blown over and numerous boats damaged. Several cars were also damaged.

Event Date	Hazard History
February 24, 2016	Lancaster County. The tornado, which began as an EF0 in Middlesex County, intensified briefly to an EF1 in the Norwood Church Road area near Flagstaff Road in Lancaster County. In this area, a brick wall on a garage was flattened, the roof was ripped off a house, and an outbuilding was destroyed. Numerous large trees were snapped, including two-foot diameter pine trees. The tornado continued north and northeast for a short distance before lifting.
	Richmond County. Tornado crossed the Rappahannock River from Essex County into Richmond County. The tornado struck Naylors Beach as an EF2 tornado removing significant portions of the upper floor of one two story home and destroying several other smaller homes. At this point, the tornado was 300 yards wide with winds around 120 mph. The tornado then crossed Newland Road, weakening slightly too low end EF1 with winds around 90 mph and continuing to Tallent Town Road and Piney Grove Road. The tornado then tracked into Westmoreland County. The tornado caused over $3.3 million in property damage.
February 24, 2016 (continued)	Westmoreland County. The tornado was re-intensified as it moved from Richmond County into Westmoreland County, crossing Kings Highway (Route 3) west of Nomini Grove as a high EF1 tornado. Tornadic winds increased to 100 mph, severely damaging two homes, and destroying a mobile home along Kings Highway. It continued to Cople Highway near Mount Holly, severely damaging numerous homes. After crossing Nomini Creek, the tornado struck Bushfield Road damaging several homes. The tornado then continued northeast along Mount Holly Road uprooting and snapping trees before moving into the Potomac River toward Maryland. Reported property damages totaled over $900,000 in Westmoreland County and over $78,000 in crop damage.
April 6, 2017	Town of Irvington. On April 6, 2017 an enhanced risk for severe weather was issued for parts of the Mid-Atlantic region. An EF1 touched down in the Town of Irvington in Lancaster County. Some windows were blown out at the local hospital, forcing the hospital to operate on emergency power for a of couple hours. Homes in the town had their roofing material, gutters or awnings, and siding material damaged. Numerous trees were snapped or uprooted.
May 5, 2017	Town of Colonial Beach. Tornado watches, warnings, and straight-line winds. EF-1 tornado near Dahlgren in King George County. Colonial Beach in Westmoreland County experienced more than $8 Million in damages to residential and commercial property from this system. More than 150 residences were affected, mostly due to damage from downed trees and debris.

Event Date	Hazard History
August 04, 2020	Lancaster County. An EF-2 tornado traveled 14.21 miles after touching down while the region was suffering the effects of Tropical Storm Isaias. Trees were downed or uprooted, structural damages to homes and buildings, and 5 injuries occurred. $3 million in damages was reported in Lancaster County. *Tropical Storm Isaias spurned 7 tornadoes Region 5 on August 4, 2020.
	Browns Store, Northumberland County. Numerous trees were downed or broken as the remainder of the EF-2 tornado from Lancaster County tracked through Northumberland as an EF-1 causing approximately $5,000 in damages.
	Fleeton, Northumberland County. An EF-1 tornado (separate from the EF-2 starting in Lancaster County above) moved onshore from the Chesapeake Bay damaging several homes, breaking uprooting trees, and causing further structural damages. $626,000 in damages were reported.

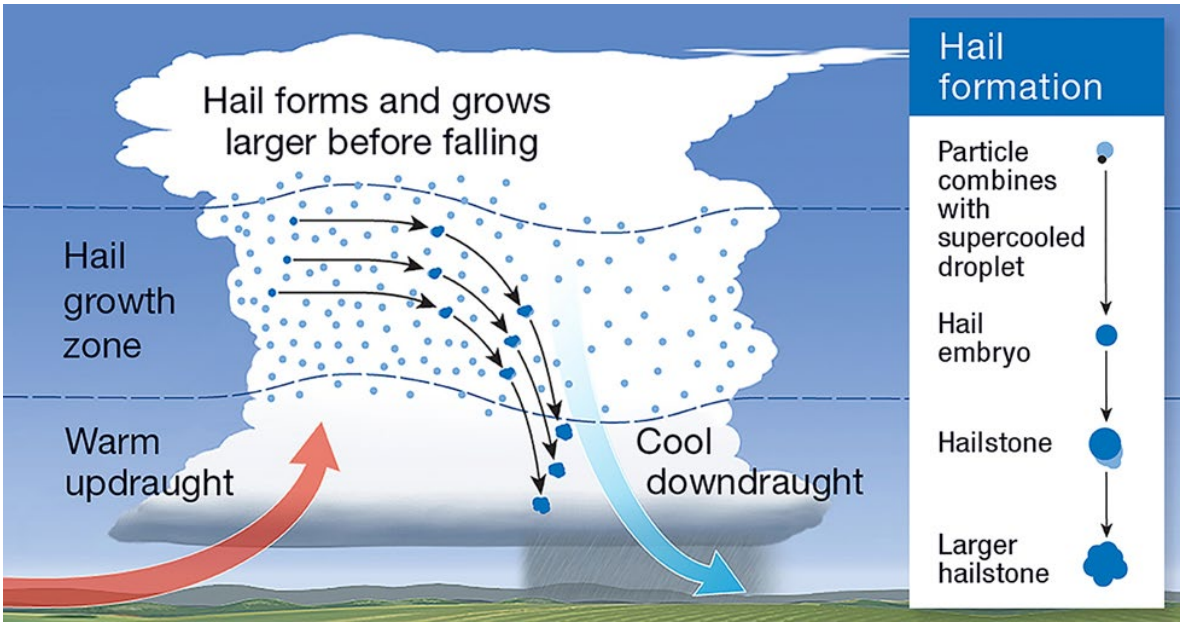
6.3.2 – Severe Weather

For the hazard mitigation plan update, severe weather includes thunderstorms, extreme wind, lightning, and hail. The National Weather Service (NWS) defines a thunderstorm as a localized storm produced by a cumulonimbus cloud and accompanied by lightning and thunder. Thunderstorms are typically the result of warm, moist air that is pushed upwards into the atmosphere, where it cools and forms cumulonimbus clouds. As the air continues to cool, it starts to form water droplets or ice, rain or hail. As these droplets or ice begin to fall, they may collide and combine many times into larger forms before reaching the earth's surface. These severe storms are associated with the presence of strong winds, thunder, and lightning. It is also possible to experience a thunderstorm with no precipitation, which can cause wildfires. Thunderstorms can form in any geographic region and sometimes cause other natural phenomena such as downburst winds, heavy rain, flash floods, large hailstones, tornadoes, and waterspouts.

Hail is precipitation in the form of ice pellets larger than five mm that forms in thunderstorms between currents of rising air (updrafts) and currents of descending air (downdrafts), as shown in Figure 6-3. These events typically occur in late spring and early summer. As defined by the NWS, one criterion for severe thunderstorms is hail that is one inch in diameter (quarter-size) or larger.

The NWS defines lightning as a visible electrical discharge (i.e., lightning bolt) produced by a thunderstorm. The release may occur within or between clouds, the cloud and air, a cloud, and the ground, or between the earth and a cloud. A bolt of lightning can reach temperatures approaching 50,000 degrees Fahrenheit. Lightning rapidly heats the sky as it flashes, but the surrounding air cools following the bolt. This rapid heating and cooling of the surrounding air cause thunder.

Figure 6-3: Hail Formation Process



Source: National Weather Service: https://www.weather.gov

6.3.2.1 – Type and Location

All areas within the Northern Neck Region are assumed to be equally at risk of the damaging effects of a thunderstorm that causes high wind, lightning, or hail. Therefore, all regional assets should be considered vulnerable to these hazards, and precautions should be taken to protect them.

Using the NWS definition for a severe thunderstorm, dime-sized hail is considered a minimum hazard, and quarter-sized hail is regarded as a major hazard. Quarter-sized hail can cause significant damage to crop and livestock, as well as property such as automobiles, aircraft, and roofs. Although rare, large hailstones may even cause injury or death. However, the amount of cover obtained during a hailstorm can significantly reduce the risk to human health during these events.

While there is no established index for lightning, a lightning strike is of minimum severity when it has limited impacts on infrastructure (ex., tree limbs) and significant severity when it causes extensive damage (ex., loss of life, fire, structural damage). The potential damages resulting from lightning strikes are primary injury, loss of life, power outages, business interruption, fire, and minor structural damage. A false sense of security often leads people to believe they are safe from a lightning strike because it may not appear near their location. However, lightning can strike ten miles away from a rain column, putting people still in clear weather at risk.

High wind events can occur for various reasons: low or high-pressure systems, isolated thunderstorms, tropical cyclones, and nor'easters. Using the NWS severe wind categories listed above, sustained non-convective winds of 40 mph or more significant lasting for one hour or longer or winds (sustained or gusts) of 58 mph for any duration, on a widespread or localized basis are considered a minimum severity event. A significant severe event would be wind events greater than 58 mph or a wind event resulting in death, injury, or consequential damage.

6.3.2.2 – Previous Occurrences

There have been 211 Severe Weather events occurring since 1955, 182 significant wind events, five lightning strikes, and 53 hail events. Some events occurred individually, but most were storms that ensconced multiple hazards. Based on the NCEI Storm Events Database, the most significant severe weather events in the Northern Neck Region are extracted and summarized in Table 6-5. Notable events include any event that caused a death or injury (direct or indirect) and the top costly events in terms of property damage. No natural deaths or indirect injuries were reported. The likelihood and potential severity of thunderstorm wind, lightning, and hail events can be assessed by reviewing the number and severity of thunderstorm events in the period of history available for the Northern Neck Region. Table 6-6 shows the distribution of events by recorded wind speed in knots and the distribution of hail events by recorded hail size in localities across the region.

Table 6-5: High Wind Events the Northern Neck Region

Location	Event Date	Event Type	Magnitude	Injuries	Deaths	Property Damage
Northumberland	09/01/2006	High Wind	37	0	0	$15,000.000
Lancaster	07/12/2009	Thunderstorm Wind	52	0	0	$1,000,000
Lancaster	07/12/2009	Thunderstorm Wind	52	0	0	$1,000,000
Lancaster	07/12/2009	Thunderstorm Wind	50	0	0	$1,000,000
Lancaster	09/01/2006	High Wind	35	0	0	$200,000
Lancaster	07/16/2000	Lightning	Unavailable	0	0	$50,000
Lancaster	08/06/2000	Lightning	Unavailable	0	0	$50,000
Westmoreland	04/21/2017	Thunderstorm Wind & Hail	50	0	0	$45,000
Richmond	06/22/2022	Thunderstorm Wind	50	0	0	$32,000
Richmond	03/02/2018	High Wind	55	3	0	$30,000
Lancaster	04/06/2017	Thunderstorm Wind	65	0	0	$27,000
Lancaster	05/04/2021	Thunderstorm Wind	65	0	0	$25,000
Northumberland	06/02/2022	Thunderstorm Wind	50	0	0	$13,000
Richmond	6/13/2013	Thunderstorm Wind	52	0	1	$5,000
Lancaster	5/2/1989	Thunderstorm Wind	100	3	0	$0

Source: NOAA NCEI Storm Events Database

Table 6-6: Frequency of Winds and Hail in Severe Weather Events

Wind Speed	No Record	0-30kts	31-40kts	41-50kts	51-60kts	61-70kts	71-80kts	81-100kts	Total
# Of Events	20	24	2	114	14	6	1	1	182
Hail Size	0.5 inch	0.75 inch	0.88 inch	1 inch	1.25 inch	1.5 inch	1.75 inch	2 inches	Total
# Of Events	0	15	7	18	1	3	6	3	53

Source: NOAA NCEI Storm Events Database

6.3.3 – Coastal Flooding

Coastal flooding is the inundation of land areas along the coasts of oceans, bays, estuaries, and coastal rivers by seawater greater than regular tide action. Coastal floods are caused by extreme sea levels, which arise from four main factors: waves, astronomical tides, storm surges, and relative mean sea levels. This advancing surge combines with normal tides to create a storm tide that can increase the mean water level

by 15 feet or more. Severe storm surge is also frequently associated with coastal-influenced storm systems, such as nor'easters and hurricanes that impact the Northern Neck Region.

A nor'easter is a low synoptic-scale cyclone that can form during the fall, winter, or early spring and produces heavy snow, high wind, and rain. The term "nor'easter" refers to the direction of the system's counterclockwise winds, which usually manifests as an offshore air mass rotating counterclockwise northeast-to-southwest over the northwest quadrant of the cyclone or storm system. According to the National Weather Service, the U.S. East Coast provides an ideal breeding ground for nor'easters.

6.3.3.1 – Type and Location

The entirety of the Northern Neck Region is susceptible to the damaging effects of coastal flooding due to its location adjacent to the Chesapeake Bay and near the Atlantic Ocean. In addition, its low-lying coastal areas near the shore, sounds, and estuaries are particularly exposed to the threat of flooding from storm surges and wind-drive waves associated with coastal storms.

Storm surge heights, wind speed, fetch length, pressure, and associated waves depend on the configuration of the continental shelf (narrow or wide) and the measurement of the water depth (bathymetry). These, as well as other factors, can impact storm surge height and wave height. For example, a narrow shelf that drops steeply from the shoreline and produces deep water near the coastline tends to have a lower surge but higher and more powerful storm waves.

6.3.3.2 – Changing Flood Risk

The *North Atlantic Coast Comprehensive Study* was conducted by the U.S. Army Corps of Engineers. The results were published in a report detailing the two-year study to address coastal storm and flood risk to vulnerable populations, property, ecosystems, and infrastructure affected by Hurricane Sandy in the United States North Atlantic region. This study is designed to help communities better understand how climate change is changing and provide tools to help communities better prepare for future flood risk. The study builds on lessons learned from Hurricane Sandy and attempts to provide the latest scientific information for state, local, and tribal planners. The Northern Neck Region communities are a part of the study area, and the study's results should be consulted when developing climate change adaptation measures based on future flood risk.

The Future Sea Level and Recurrent Flooding Risk Report for Coastal Virginia, produced by the Commonwealth Center for Recurrent Flooding Resiliency, presented the conclusion that sea level rise will significantly impact the Northern Neck Region by 2040. In addition, the Commonwealth of Virginia released the Coastal Resilience Master Plan (CRMP) which is set to assist with identifying, adapting, and protecting the coastal areas. The Technical Study within the CRMP examines nine coastal flood events presenting varying magnitudes that can be compared over time horizons: 2020, 2040, 2060, and 2080, with 2020 acting as the baseline representation of conditions. Literature from the CRMP states "Understanding these potential impacts is critical to selecting resilience projects which will minimize potential damage or disruption to a region's way of life."

6.3.3.2 – Previous Occurrences

The NCEI storm events database contains reports of many coastal flood events in the Northern Neck Region area, totaling millions of dollars in reported property damage. These events are primarily the result of storm surges associated with events such as coastal storms, nor'easters, and tropical cyclones. Table 6-7 lists the notable coastal flood events that have affected the Northern Neck Region. The general description applies to the entire region when no community-specific description is given.

Table 6-7: Notable Coastal Flooding Events in the Northern Neck Region

Event Date	Hazard History
January 27 – 28, 1998	A nor'easter battered eastern Virginia on Tuesday, January 27th, 1998 and Wednesday, January 28th, 1998. The slow movement of the storm combined with the highest astronomical tides of the month resulted in an extended period of gale to storm force onshore winds which drove tides to 6.44 feet above Mean Lower Low Water (MLLW) at Sewell's Point in Norfolk. Locally moderate coastal flooding was reported across the Middle Peninsula and Northern Neck Region areas.
February 4 – 6, 1998	A nor'easter battered eastern Virginia from Tuesday, February 3rd, 1998, through Thursday, February 5th, 1998. The slow movement of the storm resulted in an extended period of gale to storm force onshore winds which drove tides to 7.0 feet above Mean Lower Low Water (MLLW) at Sewells Point in Norfolk.
September 1, 2006	Tides of 4 to 5 feet above normal, combined with 6-to-8-foot waves caused significant damage to homes, piers, bulkheads, boats, and marinas across portions of the Virginia's Northern Neck Region and Eastern Shore. Some of the most significant damage occurred in the Lewisetta area of Northumberland County. More than $21 million in damage was reported in the Northern Neck Region from this event.
November 12 – 14, 2009	An intense Nor'easter produced moderate to severe coastal flooding across much of eastern and southeast Virginia and the Virginia Eastern Shore. Several streets, homes and businesses were flooded in low lying areas that are close to or directly exposed to the Chesapeake Bay. There were also damaged piers, bulkheads, and groins.
October 28 – 29, 2012	Superstorm Sandy moved northward well off the Mid-Atlantic Coast then northwest into extreme southern New Jersey produced very strong northeast winds followed by very strong west or northwest winds. Very strong winds caused moderate to severe coastal flooding across portions of eastern and southeast Virginia. Water levels reached 2.0 feet to 3.5 feet above normal adjacent to the Chesapeake Bay and Rappahannock River resulting in moderate to severe coastal flooding. Reported property damages totaled more than $600,000 in the Northern Neck Region.
October 2– 5, 2015	A combination of Hurricane Joaquin near the Bahamas and intense high pressure over New England produced solid onshore winds over the Mid-Atlantic. The strength and duration of the onshore winds had moderate coastal flooding along the Atlantic Coast and the Chesapeake Bay. A tidal departure of 2 to 3 feet resulted in moderate flooding along the Rappahannock River, Potomac River, and the Chesapeake Bay. Several roads were closed, and several homes and other buildings sustained flood-related damage. Hundreds of residents were evacuated from low-lying Lancaster County in Virginia's Northern Neck Region. Reported property damages exceeded $1 million.

Event Date	Hazard History
September 30, 2016	Prolonged east-to-northeast winds produced minor to moderate coastal flooding in parts of the Chesapeake Bay region. Water levels reached average flood levels in the Northern Neck Region. Tides 2 feet above regular caused moderate flooding near the Potomac River and areas adjacent to the Chesapeake Bay. Water levels reached nearly 3.7 feet MLLW at Lewisetta, VA. No damage was reported in the Northern Neck Region.
October 12, 2019	The combination of low pressure from the New Jersey coast and intense high pressure over southeast Canada resulted in persistent north or northeast winds over the Chesapeake Bay. These constant north or northeast winds and high waves allowed water levels to rise throughout the bay. Continuous north or northeast winds and high tides produced tidal anomalies between 2.0 and 3.0 feet over the middle of the Chesapeake Bay, which caused moderate to major coastal flooding over portions of Lancaster County. Windmill Point reached 4.07 feet MLLW on October 12th, 2019. No damages were reported.
April 04, 2020	Minor tidal flooding occurred over portions of Northumberland County along the Potomac River. Lewis Jetta reached 3.52 feet MLLW.
October 10, 2021	The combination of King Tides and high pressure over the Canadian Maritimes and low pressure just off the North Carolina coast produced east-northeast winds which caused minor to moderate (tidal) coastal flooding over portions of Lancaster and Northumberland Counties adjacent to the Chesapeake Bay. Windmill Point reached 3.51 feet MLLW at 230 pm on Sunday, October 10th, 2021.
October 28, 2021	Low solid pressure tracked from the Middle Mississippi Valley east northeast toward the Northeast United States from Thursday, October 28th, 2021, into Saturday, October 30th, 2021. This system produced powerful east-southeast winds and strong south-to-southwest winds throughout the period, which caused moderate to major (tidal) coastal flooding across portions of Northumberland and Lancaster Counties. Lewis Jetta reached 4.78 feet MLLW at 900 pm on Friday, October 29th, 2021.
January 03, 2022	A combination of higher astronomical tides and deepening surface low pressure tracking across North Carolina, then northeast out to sea, produced strong northeast or north winds which caused moderate (tidal) coastal flooding over portions of Lancaster County adjacent to the Chesapeake Bay. Windmill Point reached 3.78 feet MLLW at 1100 am on Monday, January 3rd, 2022.
May 10, 2022	A combination of high surface pressure centered over the Canadian Maritimes and surface low pressure spinning off the Mid-Atlantic Coast resulted in strong northeast or north winds which caused minor to moderate (tidal) coastal flooding over portions of Lancaster County adjacent to the Chesapeake Bay. Windmill Point reached 3.93 feet MLLW. Lewis Jetta reached 3.93 feet MLLW.

6.3.4 – Riverine Flooding

Riverine flooding occurs when a channel, such as a stream or a river, receives more water than it can hold, and the excess water overflows the channel banks flooding the surrounding area. Heavy rain and large amounts of snow melt can cause riverine flooding. In the Northern Neck Region, coastal influenced storms such as nor'easters, tropical storms, and hurricanes have been known to cause severe riverine flooding due to high rainfall rates and coastal storm surge that causes water to become trapped in the tributaries of the Chesapeake Bay.

6.3.4.1 – Type and Location

The Northern Neck Region is boarded by the Potomac River, the Rappahannock River, and the Chesapeake Bay. The proximity of multiple large rivers to this region puts it at high risk of experiencing riverine flooding. The floodplain delineates areas of risk, an area typically adjacent to rivers, streams, and shorelines that experiences periodic flooding that is expected to occur based on established recurrence intervals. The recurrence interval of a flood is defined as the average time interval, in years, expected between a flood event of a particular magnitude and an equal or more significant flood. Flood magnitude increases with increasing recurrence interval.

Floodplains are designated by the frequency of the flood that is large enough to inundate the area. Flood frequencies such as the 100-year flood are determined by plotting a graph of the size of all known torrents for a place and determining how often floods of a particular size occur. Another way of expressing the flood frequency is the chance of occurrence at any time, expressed as a percentage of the probability of flooding each year. For example, a 100-year flood has a one percent chance of occurring in any given year. The 500-year flood zone has a 0.2 percent chance of occurrence in any given year. Flood Insurance Rate Maps (FIRMs) are developed as part of a FEMA Flood Insurance Study (FIS) to delineate the areas at risk of being flooded during a one percent chance or 100-year flood event. The one percent chance floodplains are called the Special Flood Hazard Area (SFHA).

Figure 6-4: FEMA Flood Zones in the Northern Neck Region

Source: HAZUS

6.3.4.2 – Previous Occurrences

According to the NRI Community Risk Report and NCEI database, 17 riverine flood events have been recorded in the Northern Neck Region since 1996. Table 6-8 lists the most significant of these events. While tropical storms or hurricanes caused these events, the specific events reported resulted from heavy rainfall associated with the storm, not flooding caused by the storm surge, which will be addressed in subsequent sections.

Table 6-8: Previous Occurrences of Flooding Events in the Northern Neck Region

Event Date	Hazard History
September 16, 1999	Heavy rain from Hurricane Floyd produced widespread flooding and flash flooding across central and eastern Virginia. The flooding was a 500-year flood of record. Richmond and Westmoreland's counties reported property damages totaling $850,000 and crop damages of about $255,000.
August 27, 2011	Heavy rains associated with Hurricane Irene produced widespread low-land flooding across much of the Northern Neck Region, including washed-out or closed roadways. Storm total rainfall generally ranged from six to eleven inches. Lottsburg reported 8.67 inches of rain. Newland said 10.50 inches of rain. Montross reported 7.20 inches of rain.
September 08, 2011	The combination of the remnants from Tropical Storm Lee and a frontal boundary draped over the region caused heavy rain, which produced flash flooding across portions of central and eastern Virginia. In Westmoreland, many streets were closed by VDOT and the Fire Department. As a result, many homes were flooded on Washington and Irving Streets. Flooding was also reported on Monticello Road.
October 29, 2012	Superstorm Sandy, which moved northward well off the Mid-Atlantic coast, produced heavy rain, which caused flooding across much of eastern and southeast Virginia. Numerous roads were closed due to flooding. Total rainfall ranged from three to ten inches across the Northern Neck Region. Total rainfall of 9.90 inches was reported at Reedville. Total rainfall of 6.77 inches was reported at Lottsburg.
July 28, 2017	Scattered thunderstorms in advance of and along a frontal boundary produced heavy rain and flash flooding across central and eastern Virginia portions. Portions of Route 202 in Callao were flooded. A rainfall total of 7.15 inches was measured at Lottsburg.
May 17-22, 2018	Multiple occurrences of showers and thunderstorms associated with areas of low pressure along a frontal boundary produced heavy rain, causing flash flooding, standing water, and pluvial flooding. As a result, northern Neck Region communities suffered flooding and road closures over a week due to heavy rainfall and ground saturation.
June 22, 2018	Scattered thunderstorms along a frontal boundary produced heavy rain, which caused flash flooding across portions of central Virginia. Mobile home development in Wellford (Richmond County) suffered flooding that invaded homes.

Event Date	Hazard History
October 11, 2018	Tropical Cyclone Michael tracked from South Carolina up the Atlantic coast producing heavy rain and flash flooding. Rainfall totals reported across the Northern Neck Region included: 8.3 inches at Kennard, 7.1 inches at Kinsale, 4.8 inches at Mt Holly, 6.5 inches at Mollusk, 7.9 inches at Howland, and 7.1 inches at Lottsburg. Roads across the region remained closed, washed out, or impassable over 2-3 days.
June 11, 2021	Scattered thunderstorms along a frontal boundary produced heavy rain, which caused flash flooding across portions of central and eastern Virginia. Flood waters on Cat Point Creek in Newland resulted in the dam failure of Chandlers Mill Pond – a water rescue was necessary because of the dam failure. In addition, portions of Route 3 and other major roads were closed due to water. Rainfall totals ranged from 4-10 inches across the region.

6.3.5 – Wildfire

A wildfire is an undesirable fire occurring in a forest, brushland, marsh, coastal vegetative areas, or wooded development that is a severe and growing hazard over much of the United States. Fires ignited by natural causes such as lightning or a controlled burn process are part of the wildfire cycle and an essential contributor to forest health.

Wildfires are uncontrolled fires spreading through vegetative fuels, exposing and possibly consuming structures for areas more significant than one acre. Wildfires may create additional environmental concerns after extinguishing, such as increased erosion and water quality in stormwater runoff. Three main factors influence wildfire behavior – topography, fuel, and weather. Other hazards can contribute to the potential for wildfires or influence wildfire behavior. For example, high winds can blow down power lines, and lightning can spark fires. Drought conditions also increase wildfire potential by decreasing fuel moisture. Warm winters, hot, dry summers, severe drought, insect and disease infestations, years of fire suppression, and growth in the wildland-urban interface (WUI) continue to increase wildfire risk and the potential for catastrophic wildland fires. Forest insect epidemics and forest parasites contribute to wildfire potential by increasing fuel loading.

Humans cause nearly 85% of wildland fires in the United States. Human-caused fires result from campfires left unattended, debris burning, equipment use and malfunctions, negligently discarded cigarettes, and intentional acts of arson. *(Source: National Park Service (NPS): Wildfire Causes and Evaluations)*.

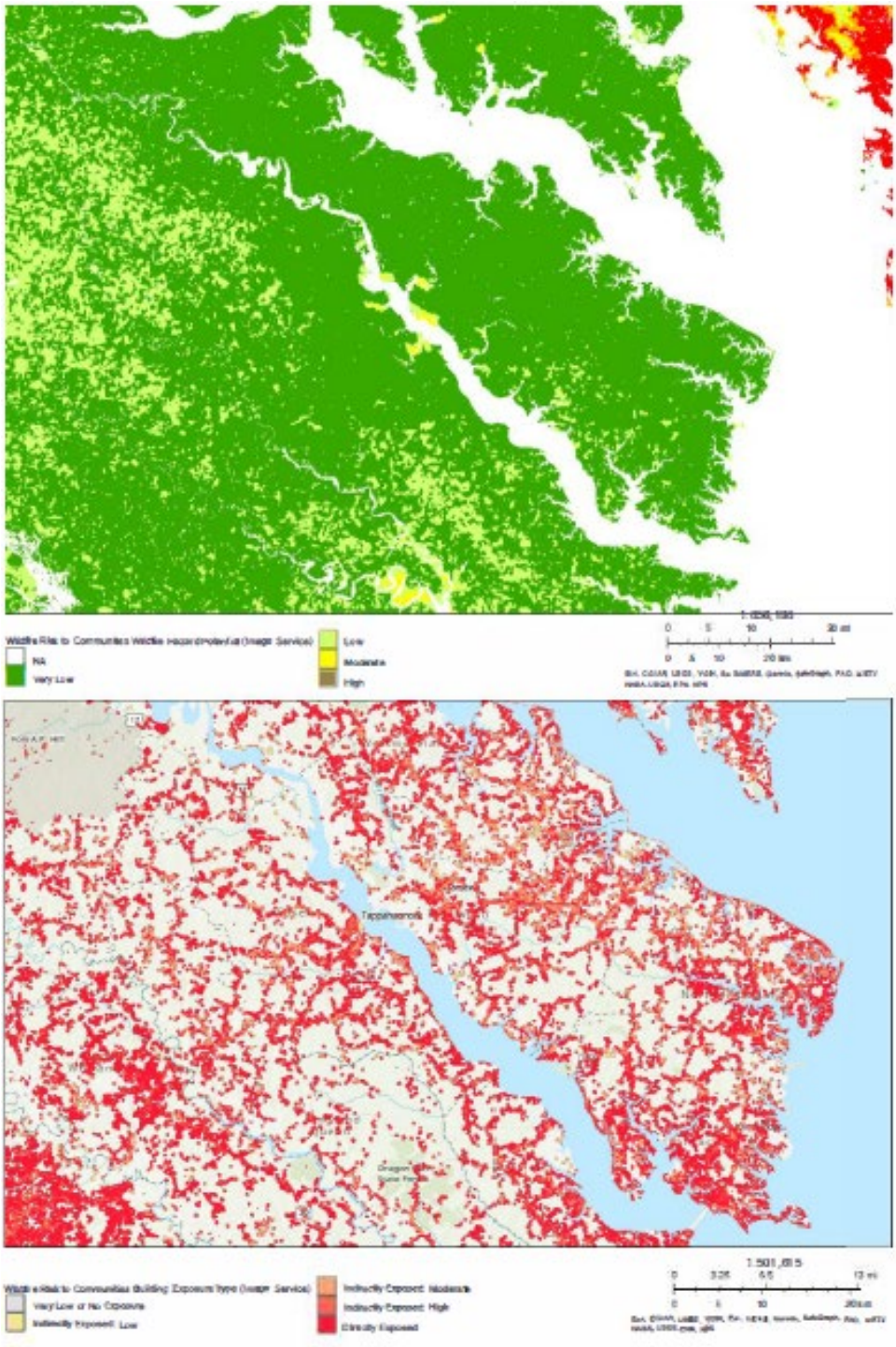
6.3.5.1 – Type and Location

WUI refers to the zone of transition between unoccupied land and human development. It is the line, area, or location where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuels. Communities adjacent to and surrounded by wildland are at varying degrees of risk from wildfires. *(WUI: Desk Reference Guide)*

Wildland fires have recently grown in prominence across the United States, and the risk is not missed in the Northern Neck Regions. Although there are not many records of significant wildland fires in the Northern Neck Region, wildland fires have affected Region 5, such as the Great Dismal Swamp Fire in 2011, and in February of 2022, nearby Virginia Beach battled multiple wildfires in the Back Bay National Wildlife Refuge.

The Northern Neck Region has a significant means of fuel and conditions that could feed wildfires, and limited first responders, distance, and water access contribute to the possibility of wildfires growing and decreasing the chances of controlling the fire quickly. In the summer seasons, precipitation is often scarce, and coastal vegetation, farmland, debris, and woodland are dry with decreases in the water supply that depend on rainwater to replenish the reservoirs.

Figure 6-5: Wildfire Risk to Communities and Buildings



Source: Wildfire Risk Map Layer https://www.arcgis.com/apps/mapviewer/index.html

6.3.5.2 – Previous Occurrences

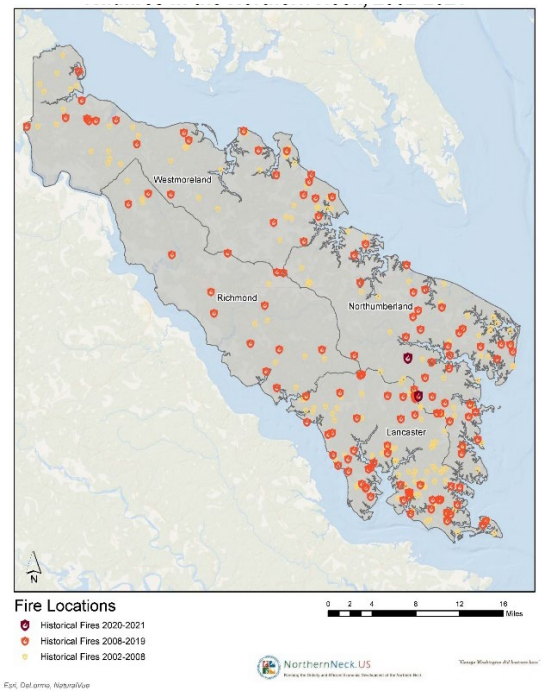
According to the Virginia Department of Forestry 2009-2022 statistics, there are 141 incidents reported in the Northern Neck Region. Table 6-9 presents statistics for wildfires from 2009-2022 provided by the Virginia Department of Forestry (VDOF). Figure 6-6 shows wildfires recorded from the VDOF database for the region during 2002-2021.

Table 6-9: Wildfire Statistics in the Northern Neck Region

Jurisdiction Data	Lancaster	Northumberland	Richmond	Westmoreland	Northern Neck Region
Total Wildfires	52	38	18	33	141
Total Acres Burned	66.3	120	25.3	75	286.6
Homes Damaged/Destroyed	0/0	0/0	1/0	0/0	1/0
Homes Damaged/Destroyed Value	$0	$0	$58,000	$0	$58,000
Buildings Damaged/Destroyed	1/0	3/1	1/2	0/0	5/3
Buildings Damaged/Destroyed Value	$1,000	$3,100	$5,000	$0	$9,100
Other Items Damaged/Destroyed	21	42	1	18	82
Other Items Damaged/Destroyed Value	$225,400	$508,000	$40,000	$11,700	$857,100

Source: Virginia Department of Forestry Fire provided data

Figure 6-6: Northern Neck Regional Wildfires and Risks to the Community 2002-2021



Source: VDOF database

6.3.6 – Winter Weather

Winter storms are events in which varieties of precipitation are formed that only occur at low temperatures, such as snow or sleet, or a rainstorm where ground temperatures are low enough to form ice (i.e., freezing rain). The following are the National Weather Service's descriptions of various components of a winter storm:

- **Heavy snowfall.** The accumulation of six or more inches of snow in 12 hours or eight inches in 24 hours.
- **Blizzard.** Sustained wind speeds over 35 mph accompanied by heavy snowfall or large amounts of blowing or drifting snow for more than three hours.
- **Freezing rain.** Precipitation falls as a liquid but freezes on contact with roads, trees, power lines, and other surface structures below 32 degrees F, forming a dangerous ice laze.
- **Ice storm.** A type of winter storm characterized by freezing rain results in a dangerous coating of ice on trees, power lines, and road surfaces.
- **Sleet**. Solid grains or pellets of ice formed by the freezing of raindrops or the refreezing of primarily melted snowflakes. Sleet does not cling to surfaces.
- **Wind chill**. A calculated temperature index that describes the combined effect of wind and low air temperatures on exposed skin.

Winter storms usually form along a stationary front. An area of lower pressure develops along the front as the atmosphere tries to even out the pressure difference. This pressure difference creates wind that blows from high to low pressure to move enough air to even out the pressure difference. As the air moves toward the low-pressure area, it has nowhere to go but up into the colder regions of the atmosphere, which causes

water vapor in the air to condense and fall as snow. To the south, if the temperatures are warm enough, it can fall as heavy rain in thunderstorms.

6.3.6.1 – Type and Location

Winter storms derive energy when two air masses of substantially different temperatures and moisture levels meet. In Northeastern Virginia, winter storms usually form when an air mass of cold, dry Canadian air moves south and interacts with a warm, moist air mass moving north from the Gulf of Mexico. The point where these two air masses meet is called a front. If cold air advances and pushes away the warm air, it forms a cold front. When warm air advances, it rides up over the denser, cold air mass to create a warm front. If neither air mass advances, it forms a stationary front.

In the temperate eastern Virginia climate, winter storms infrequently occur during late fall or spring but are contained mainly in the winter season, particularly between January and early March. Winter storms can include heavy snow, freezing rain, and high winds that completely disrupt communities' transportation networks, cause power outages, close schools, and hamper communication.

6.3.6.2 – Previous Occurrences

According to the NCEI Storm Events Database, there have been 53 recorded winter storm events across the Northern Neck Region counties since 1996, including the following types of events: Blizzards, heavy snow, ice storm, and winter storm.

These severe winter weather events have resulted in $260,000 in property damage. In addition, the Northern Neck Region has had five major disaster declarations and two emergency declarations related to winter storm weather. Table 6-10 identifies some of the most significant of these events.

Table 6-10: Previous Occurrences of Winter Storm Events in the Northern Neck Region

Event Date	Hazard History
January 26, 1987	A record 17.0 inches of snow fell 24 hours on January 26, 1987, in Richmond County.
March 13, 1993	The "Blizzard of '93", also known as the "Superstorm '93" and the first coined "Storm of the Century" during the 90s, was an incredibly intense nor'easter that impacted the entire East Coast of the U.S. An emergency declaration was made for the Northern Neck Regional jurisdictions.
January 6, 1996	The blizzard of 1996 was a strong winter storm that impacted the eastern United States, especially the metropolitan areas of Washington, DC, Philadelphia, New York City, and Boston. Three-day snowfall totals ranged from 10-20 inches in the Northern Neck Regional area. As a result, a presidential disaster was declared that included Northern Neck Regional jurisdictions.
December 23, 1998	A significant ice storm affected central and eastern Virginia from Wednesday, December 23, into Friday, December 25, including all four counties in the Northern Neck Region. A prolonged period of freezing rain and some sleet resulted in ice accumulations of one-half inch /0.50/ to one inch /1.00/ in many locations. The heavy ice accumulations on trees and power lines caused widespread power outages across the region. Approximately 400,000 customers were without power during the maximum outage period, Christmas Eve day. Some customers were without power for about ten days.

Event Date	Hazard History
	Many accidents occurred due to slippery road conditions, especially bridges and overpasses. Secondary roads were impassable due to fallen tree limbs and, in a few cases, whole trees.
January 25, 2000	A significant winter storm dumped more than one foot of snow across much of central and eastern Virginia, with isolated amounts of up to 19 inches reported. There was also significant blowing and drifting of snow as winds gusted over 30 mph during the storm. The Richmond International Airport was closed during this storm. A frigid air mass built into the region after the storm, preserving the snowpack for over a week in many areas. Snow totals in the Northern Neck Region included: Richmond County 11 to 12 inches, Westmoreland County 12 to 13 inches, and Northumberland County 12 inches.
January 30,2000	An ice storm affected a large portion of central and eastern Virginia with ice accumulations of up to one-half inch. Freezing rain mixed with sleet and snow spread over the area during the morning hours. Freezing rain then mixed with rain during the afternoon and evening along the eastern counties of Richmond, and Westmoreland Counties. More than $30,000 in property damage was reported.
April 7, 2007	Low pressure developed over southern Virginia and deepened as it moved offshore. A band of moderate to heavy snow fell over portions of eastern Virginia as the storm strengthened off the Atlantic seaboard. Heavy snow in Richmond, Northumberland, and Lancaster Counties.
January 30, 2010	Low pressure moving off the coastal Carolinas produced between five and fifteen inches of snow across central and eastern Virginia from Friday night, January 29th, into Saturday night, January 30th. Snowfall amounts reported in the Northern Neck Regional jurisdictions ranged from as low as seven inches to thirteen inches of snow reported in Richmond County.
February 5, 2010	Low pressure moving off the coastal Carolinas produced between four and twelve inches of snow across central and eastern Virginia from Friday afternoon, February 5th, through Saturday afternoon, February 6th. In the Northern Neck Region, some of the heaviest snow fell in Newland, Richmond County, with 11 inches.
January 22,2016	Intense low pressure moving from the Southeast United States northeast and off the Mid-Atlantic Coast produced between five and thirteen inches of snow and strong winds across the Virginia Northern Neck Region and south-central Virginia. Heathsville reported 11 inches of snow.
January 7, 2017	Low-pressure tracking northeast off the Southeast and Mid-Atlantic Coasts produced heavy snow and strong winds across eastern Virginia. In Northumberland and Lancaster Counties, snowfall totals were generally between 8 inches and 12 inches. Strong north winds affected the area, producing some blowing snow and reduced visibility. Heathsville and Brook Vale reported 12 inches of snow.

Event Date	Hazard History
February 11, 2021	Colder air at the surface filtering in from the north, combined with weak low-pressure areas tracking across the Carolinas, produced snowfall totals between three and six inches across central Virginia, the Virginia Northern Neck Region, and the Virginia Eastern Shore. Snowfall across the Northern Neck Region equaled 3-5 inches causing travel issues and some power outages.

6.3.7 Hurricane/Tropical Storms

The NOAA's National Hurricane Center defines a tropical cyclone as a warm-core non-frontal synoptic-scale cyclone originating over tropical or subtropical waters, with organized deep convection and a closed surface wind circulation about a well-defined center. In addition, tropical cyclones are defined by atmospheric and hydrologic characteristics such as severe winds, storm surge flooding, high waves, coastal erosion, extreme rainfall, thunderstorms, lightning, and, in some cases, tornadoes. Tropical cyclones that impact the east coast of the United States originate in the Atlantic basin, which includes the Atlantic Ocean, the Caribbean Sea, and the Gulf of Mexico.

Depending on strength, tropical cyclones are classified as hurricanes or tropical storms. The Saffir-Simpson Hurricane Wind Scale (Figure 6-7) uses wind speed, central pressure, and damage potential to create storm classifications. This scale is the standard describing an event's disaster potential. The scale uses a 1 to 5 categorization based on the hurricane's intensity at the indicated time. The scale provides examples of damage and impacts in the United States associated with winds of the indicated intensity. In general, damage rises by about a factor of four for every category increase.

Figure 6-7: Saffir-Simpson Hurricane Wind Scale

Category	Sustained Wind Speed	Impacts due to Wind
5	157 mph or higher 137 kt or higher 252 km/h or higher	Catastrophic Impacts: High percentage of homes will suffer severe damage or destruction, due to breached openings, roof failure, and wind-driven rain. Fallen trees and power lines will isolate neighborhoods. Disruption to utilities may last weeks or months.
4	130-156 mph 113-136 kt 209-251 km/h	Catastrophic Impacts: Homes will suffer severe damage to roof structure, exterior walls, and windows. Wind-driven rain may cause interior damage. Numerous trees will be snapped and uprooted. Disruption to utilities may last weeks.
3	111-129 mph 96-112 kt 178-208 km/h	Devastating Impacts: Homes will incur major damage to exterior walls, roof shingles and decking. Snapped trees and downed power lines will block numerous roads. Disruption to utilities may last days to weeks.
2	96-110 mph 83-95 kt 154-177 km/h	Extensive Impacts: Many homes will incur damage to siding, roof shingles and decking. Many trees will be snapped, uprooted, and block some roads. Power outages expected for several days.
1	74-95 mph 64-82 kt 119-153 km/h	Homes could have damage to shingles, vinyl siding, and gutters. Trees may lose major branches; smaller trees may uproot. Power loss could last days.
Tropical Storm	39-73 mph 35-63 kt 63-118 km/h	Damage to some trees and power lines. Power loss in some areas. Outdoor items may become airborne and dangerous.

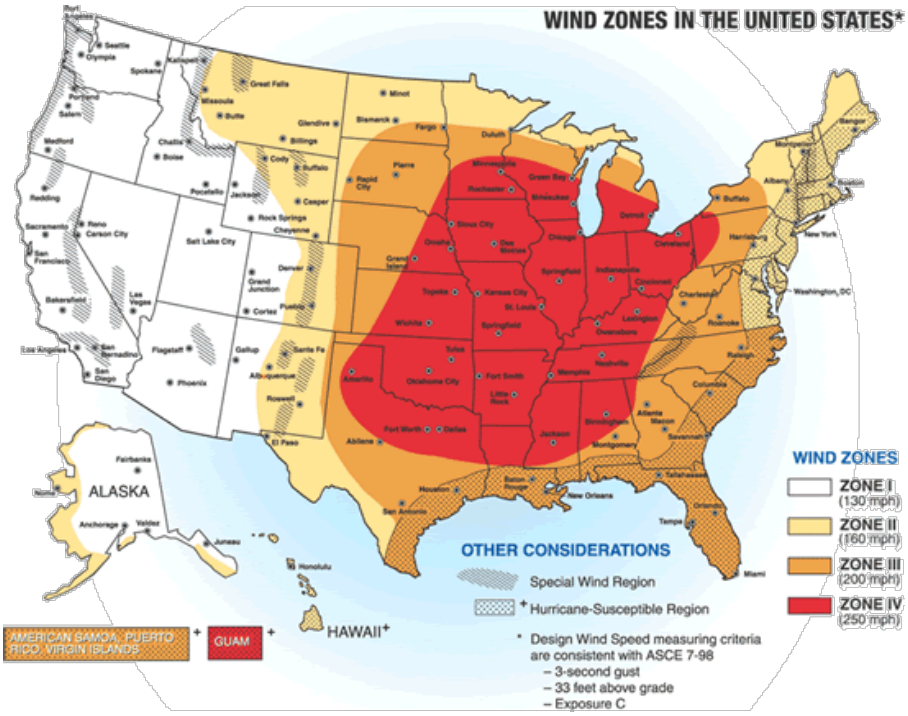
Source: NOAA NHC: https://www.nhc.noaa.gov/

6.3.7.1 – Location and Extent

All areas within the Northern Neck Region are equally at risk of being affected by a hurricane, but storm damage depends on factors such as the specific storm track, tides, and temperatures. The hurricanes that affect Virginia typically form in the Atlantic or Gulf of Mexico during the months of June through November. These storms form from low-pressure solid systems originating in the tropics, which cause the updraft of warm ocean water. Typically, these systems damage solid winds and high seas that can cause flooding and shoreline erosion. A storm in the Atlantic is defined as a hurricane when the maximum sustained winds reach 74 miles per hour. Below this level is defined as either a tropical storm or a tropical depression.

A hurricane or storm track is the line that delineates the path of the eye of a hurricane or tropical storm. The average diameter of hurricane-force winds is 100 miles, with tropical-storm-force winds extending out 300 – 400 miles. Figure 6-8 shows the distribution of the four wind zones in the United States that reflect the number and strength of extreme windstorms. For example, the Northern Neck Region is in a "Hurricane-Susceptible Region" of Zone II, where damaging wind speeds of up to 160 mph can be experienced. Buildings should be built to withstand this level of wind event.

Figure 6-8: National Wind Zones



Source: National Institute of Standards and Technology: https://www.nist.gov/image/windzonemapjpg

Storm surge flooding can push inland, and riverine flooding associated with heavy inland rains can be extensive. High winds are associated with hurricanes, with two significant effects: widespread debris due to downed and damaged trees and building debris; and power outages. The Northern Neck Region is especially vulnerable to hurricanes and their impacts. A tropical cyclone or hurricane has the potential to affect the entire region demonstrated by many past tropical depressions, tropical storms, and hurricanes. As a storm moves into more shallow waters, wave heights may lessen, but water levels rise, bulging up on

the storm's front right quadrant in the "storm surge." that is the deadliest part of a hurricane. Storm surges and wind-driven waves can devastate a coastline.

6.3.7.2 – Previous Occurrences

According to the NCEI database, the only storms that have impacted the Northern Neck Region at hurricane strength: were Hurricanes Fran, Floyd, and Isabel. While these storms did not directly track over the Northern Neck Region, damages were reported in the area due to coastal flooding and high wind associated with the storms because of their relatively high strength in their northeastern quadrant. Tropical storms most often impact the region as the remnants of a hurricane moving up the east coast, and these storms frequently bring significant risks and damages. Table 6-11 summarizes the hurricanes and tropical storms to impact the Northern Neck Region since 1996.

Table 6-11: Previous Occurrences of Hurricanes in the Northern Neck Region

Event Date	Hazard History
September 5, 1996	Hurricane Fran was a Category 3 hurricane that struck Virginia and North Carolina in September 1996. In Virginia, winds between 39 and 73 mph lashed the Chesapeake Bay and increased water levels in the Potomac River around the nation's capital. There was severe damage to power lines that left 415,000 households in Virginia without electricity, making it the most significant storm-related power outage in history until Hurricane Isabel in 2003. Along the Rappahannock River, a storm surge of 5 feet damaged or sank several small boats and damaged wharves and bulkheads. In addition, an F1 tornado touched down in Lancaster County in the Northern Neck Region, producing winds up to 90 mph that caused $2.5 million in residential damage to 45 structures and $200,000 in commercial damage.
September 15, 1999	Hurricane Floyd was a Category 1 hurricane as it entered Virginia on September 15, 1999. For the Northern Neck Region area, Hurricane Floyd brought heavy rainfall due to a stalled frontal boundary. The downpour led to overflowing rivers in the Chowan River Basin, some exceeding 500-year flood levels. Northumberland and Lancaster counties reported $1.1 million in property damage and $147,000 in crop damage due to this storm.
September 18, 2003	Hurricane Isabel was a Category 1 hurricane crossing the Virginia Beach area. Sustained tropical storm force winds with frequent gusts to hurricane force occurred over Eastern Virginia, along and near the Chesapeake Bay and Atlantic coastal waters. While Hurricane Isabel ultimately made landfall in Ocracoke Island, NC, and tracked inland west of Richmond, Virginia, the high winds, and storm surge greatly affected the Northern Neck Region. For example, the storm surge at Colonial Beach in Westmoreland County reached 6.5 feet. The storm caused widespread power outages, downed numerous trees, and eroded beaches throughout the Northern Neck Region. In addition, Westmoreland County reported about $450,000 in crop damage because of the storm.
September 1, 2006	The remnants of Tropical Storm Ernesto interacted with extremely high pressure over New England to generate strong winds, heavy rainfall, and storm surge-related tidal flooding and damage. Five to 8 inches of rainfall were typical across central and eastern Virginia. This rainfall caused flooding in many areas, although no substantial river flooding resulted from the heavy rain. Wind gusts of 60 to 70 mph occurred on the Eastern Shore of Virginia and areas adjacent to the Chesapeake Bay from Yorktown northward. Tides were exceptionally high from communities adjacent to the York River, northward through the Rappahannock River, to tidal portions of the Potomac River. Tides 4 to 5 feet above average, combined with 6-to-8-foot waves, caused significant damage to homes, piers, bulkheads, boats, and marinas across portions of the Peninsula and Middle Peninsula near the Chesapeake Bay and adjacent tributaries. At some locations on the Middle Peninsula, Northern Neck Region, and Eastern Shore, the tidal flooding and damage rivaled that from Hurricane Isabel in 2003. Power outages were widespread across

Event Date	Hazard History
	Virginia's Northern Neck Region and Middle Peninsula. Reported property damages in Northumberland County were over $23 million (2017$).
August 27, 2011	Hurricane Irene affected the Mid-Atlantic Region by bringing strong winds, storm surge flooding, and up to 12 inches of rain across eastern North Carolina, central and eastern Virginia, and the DELMARVA peninsula. Although Irene passed east of the Mid-Atlantic coast, the most substantial wind damage occurred in a swath from Caroline and Westmoreland counties (Northern Neck Region) southward into the Richmond metropolitan area, then southeastward into Surry, Sussex, James City, and Southampton counties. Winds estimated between 70 and 80 mph downed many trees, blocked roads, and caused widespread power outages. In addition, the Richmond Times-Dispatch reported widespread downed trees, standing water, and minor damage to homes.
October 28, 2012	Hurricane Sandy was the deadliest and most destructive hurricane of the 2012 Atlantic hurricane season and the second-costliest hurricane in United States history. On October 26, Governor of Virginia Bob McDonnell declared a state of emergency. Moderate to severe flooding occurred along the coast and the Rappahannock River in the Northern Neck Region.
September 02, 2016	Hurricane Hermine tracked up the east coast from the Caribbean, leaving large amounts of rainfall, deaths and injuries, wind damage, and flooding. The Northern Neck Region suffered minor damages compared to other storms. Periods of heavy rain, beach erosion, and high tides were notable.
October 8, 2016	Hurricane Matthew was a powerful and devastating tropical cyclone that became the first Category 5 Atlantic hurricane since Hurricane Felix in 2007. While the damage was primarily confined to the coast in Florida and Georgia, torrential rains spread inland in the Carolinas and Virginia, causing widespread flooding. Impacts to the Northern Neck Region were localized.
August 04, 2020	Hurricane Isaias tracked north just inland of the central Atlantic coast of Virginia as a tropical storm producing tropical storm force winds, significant structural damages, coastal damages, and $250k in the Northern Neck Region localities. In addition, region 5 in Virginia reported $2.8 million in damages.
July 08, 2021	Hurricane Elsa was not a significantly costly storm for localities in the Northern Neck Region. It tracked north inland of the central Atlantic coast producing tropical storm force winds causing damage, downing trees, and power lines, and causing power outages. In addition, minor structural damage was reported in the region.

6.3.8 – Coastal Erosion

Coastal erosion is the landward displacement of the shoreline caused by the forces of waves and currents. Sea level rise, land subsidence, and increasing rates of shoreline development intensify tidal erosion, causing property loss and water quality degradation. As a result, coastal erosion significantly impacts water quality and natural resources. According to the Virginia Department of Conservation and Recreation's Shoreline Advisory Service, there is a state of constant change in the shorelines, and some shorelines in Virginia have historical erosion rates of up to 30 feet per year. (Source: https://www.dcr.virginia.gov/soil-and-water/seas).

Coastal erosion poses an increasingly severe threat to the region's local governments since each county features significant shoreline areas encompassing a large percentage of each community's higher-value residential building stock. In addition, coastal erosion is wearing away the land exacerbating the removal of beach or dune sediments. Wind and fast-moving motor craft can also cause coastal erosion, initiating temporary or long-term loss of deposits and rocks and redistributing coastal sediments. These processes often result in shoreline loss due to erosion in one location balanced by nearby accretion.

6.3.8.1 – Type and Location

Coastal erosion impacts the jurisdictions in the Northern Neck Region in varying degrees. The two driving forces of coastal erosion in the Northern Neck Region are the slow rise in sea level that started about 15,000 years ago that has flooded the coastal plain watersheds and wave action from hurricanes and nor'easters[1]. As the shorelines recede and erode, the bank material creates sandy beaches and is carried offshore to make sand bars.

Erosion rates and potential impacts are highly localized. Four principal factors determine coastal erosion rates: storm frequency; storm type and direction; resulting wind, tides, current, and waves; and storm intensity and duration. Other forces which cause increased levels of stormwater runoff and coastal erosion are:

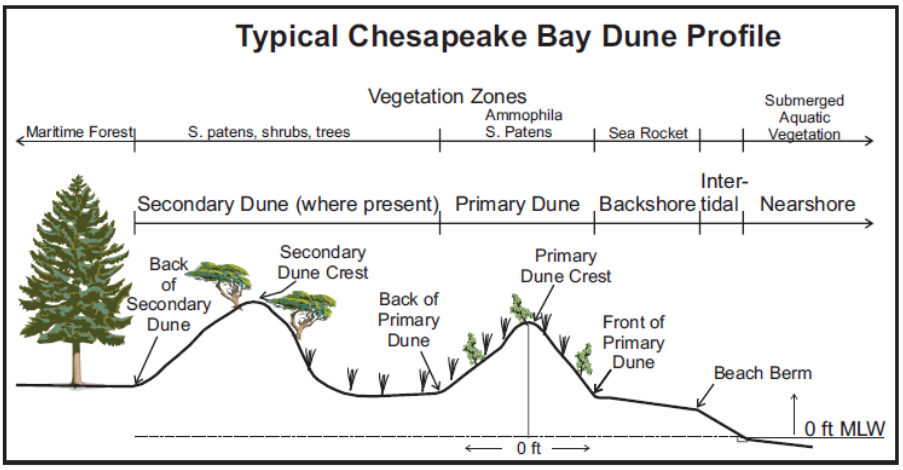
- human activity
- grading
- upland runoff
- vegetation removal

The beaches and dune system along the Chesapeake Bay are protected by the Coastal Primary Sand Dune Protection Act of 1980[2]. Research by Hardaway *et al.* (2001) located, classified, and counted the dune systems within the eight localities listed in the Act, including Northumberland and Lancaster Counties. Subsequently, the Northumberland County Dune Inventory was created by Hardaway *et al.* in 2003 to detail the location and nature of the primary jurisdictional dunes along the Northumberland County Chesapeake Bay shoreline. Figure 6-9 outlines a typical Chesapeake Bay dune profile.

[1]The General Assembly of Virginia enacted the Coastal Primary Sand Dune Protection Act (the Dune Act) in 1980.

[2] The Dune Act was initially codified in § 62.1-13.21 to -13.28. The Dune Act is now recodified as Coastal Primary Sand Dunes and Beaches in § 28.2-1400 to -1420.

Figure 6-9: Typical profile of a Chesapeake Bay Dune System



Source: Virginia Institute of Marine Science, Chesapeake Bay Shoreline Evolution Reports

Updated shoreline evolution studies were completed for Northumberland (August 2014), Lancaster (March 2012), Richmond (September 2011), and Westmoreland (September 2012) Counties by the Virginia Institute of Marine Science (VIMS) in conjunction with The College of William & Mary, which presents how these dune profiles have evolved since 1937 using aerial imagery. The localized effect of land subsidence and flood heights can vary by several feet over the tidal areas, given basin shape, wind direction, and tide state.

6.3.8.2 – Previous Occurrences

There is no single continuous record of coastal erosion events for the Northern Neck Region, and coastal erosion is a constant and pervasive issue that could cost the Northern Neck Region billions in future property damages. The Northern Neck Region includes more than 1,000 miles of shoreline, including beaches, marinas, and historic towns with valuable waterfront property. Shoreline erosion is greatly influenced by coastal storms, sea-level rise, tidal patterns, and stormwater runoff.

Stormwater runoff rate and volume increase with the amount of solid impermeable surfaces located near the shoreline that prevent water from soaking into the ground. High water levels during a storm often result in shoreline erosion and can affect the performance of erosion control efforts such as living shoreline efforts.

A noteworthy example of erosion from storm events:

- Hull Springs Farm, Lower Machodoc Creek, Westmoreland County
  - Due to Tropical Storm Ernesto in 2006, the base of the bank was significantly impacted, and the nature of the long-term erosion was dramatically revealed. The wave action cut bank scarp generated from the storm was 6 ft high and eroded 1 to 2 ft in some areas.

6.3.9 – Pluvial Flooding

Pluvial flooding occurs when the ground is saturated with water and falling rain has nowhere to go. Large amounts of rainfall in short periods leave the water with nowhere to go if the ground is already saturated or if there has been a prolonged period without precipitation, and the ground will not readily soak up liquids at a rapid pace resulting in poor stormwater runoff and can cause flash flooding, roadway inundation, and dangerous road conditions.

6.3.9.1 – Type and Location

The landscape and location of the communities in the Northern Neck Region increase flooding risks in general. The risks of excessive rainfall from coastal storms and severe weather events further increases the risk of pluvial flooding.

6.3.9.2 – Previous Occurrences

Table 6-12: Previous Pluvial Flooding Events in the Northern Neck Region

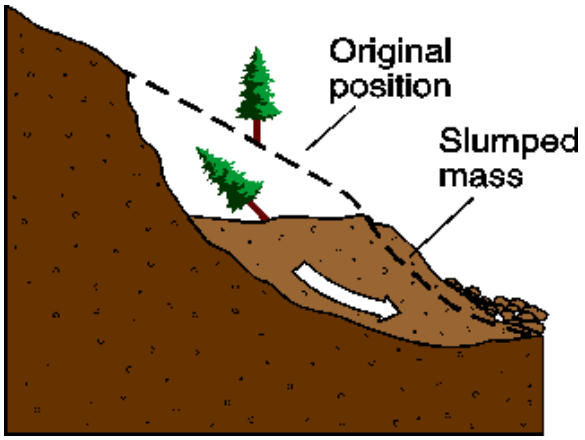
Date	Description
September 05, 2006	High water was reported on several roads across the county, including State Routes 202 and 3. SR 202 was reported to have water and soil spill over the road due to an erosion.
July 28, 2017	Scattered thunderstorms in advance of and along a frontal boundary produced heavy rain and flash flooding across portions of central and eastern Virginia. Portions of Route 202 were flooded.
September 09, 2018	Scattered showers and thunderstorms along a stationary boundary produced heavy rain which caused flash flooding across portions of the Virginia Northern Neck Region. Several roads were flooded over portions of eastern Lancaster County, especially around the Town of Kilmarnock. Radar estimates indicated that up to three inches of rain had fallen in the area. Portions of Route 354 was reported under water.
June 11, 2021	Scattered thunderstorms along a frontal boundary produced heavy rain which caused flash flooding across portions of central and eastern Virginia. Route 354 (River Road) was flooded near Belle Isle Road in Lancaster. In Northumberland, Route 202 (Hampton Hall Road) was closed at Callao due to vehicles stranded in flood waters. Valley Drive was flooded. Vehicles were stranded and a water rescue occurred from a vehicle in about 3 feet of water. In Richmond County, roads were flooded from Warsaw to Oldhams, many roads were closed due to flooding, a water rescue occurred on Peach Grove Road due to flood waters on Cat Point Creek resulting from the dam failure of Chandlers Millpond. Westmoreland was faced with multiple road closures due to flooding, including several main routes into towns.

6.3.10 – Landslide

The USGS defines landslide as the movement of a mass of rock, debris, or earth down a slope and the the term incorporates five modes of slope movement: falls, topples, slides, spreads, and flows. Landslide is not an everyday event. The type of geologic material involved can determine further the type of landslide that may occur in an area such as rock falls and debris flows. Debris flows would be the most direct of concerns in the Northern Neck jurisdictions. One event is recorded in the NCEI, and the NRI has not recorded any since 1996. Nevertheless, there is concern among the Region that some of the inland river areas have a risk for landslide events, and the NRI notes Landslide as a “Relatively Moderate or Low” Risk

with an Index Score of 19.64 in Lancaster, 15.92 in Northumberland, 17.78 in Richmond, and 15.74 in Westmoreland. Figure 6-10 demonstrates a before and after example of a landslide.

Figure 6-10 Landslides



Source: BC Ministry of Energy, Mines and Petroleum Resources

6.3.10.1 – Type and Location

One of the most significant areas of concern for this hazard include the cliffs in Westmoreland State Park. The displacement of soil during heavy rainfall may cause collapse of the cliffs.

6.3.10.2 – Previous Occurrences

There is a previously reported collapse of a portion of the Nomini Cliffs in Westmoreland County as can be seen in Figure 6-11 below.

Figure 6-11: Nomini Cliffs Landslide

Source: 2017 Northern Neck Regional HMP

Additionally, in 2018, Richmond County faced a landslide that presented the County and region with firsthand experience of the consequences of improperly clearing lands without sediment and erosion control, and proper stormwater management practices. In 2017, 13 acres of forested land was cleared by developers without proper permits or inspections. The land is directly adjacent to the Fones Cliffs in Richmond County, and that as well as surrounding lands are preserved under environmental protections for historical purposes and the high number of American Bald Eagles that nest along the cliffs. On May 24,

2018, during heavy rains a portion of the Fones Cliffs, collapsed into the Rappahannock River. The resulting landslide can be seen in Figure 6-12 below, and shows the disturbance of a large amount of dirt, stone, silt, and trees.

Richmond County had placed a stop work order on the developers, citing the lack of permits, prior to the event, and the Department of Environmental Quality had issued citations. It should be noted that the local and State agencies did intervene, but the damage that the developers had caused prior to their knowledge and intervention was detrimental. The Virginia Department of Environmental Quality and the State Water Control Board eventually filed a lawsuit against the developer for repeat environmental violations after DEQ referred the case to the Virginia Attorney General's office.

This event is a prime example of the need for mitigation integration and enforcement of zoning and floodplain practices as well as pursuing education in stormwater management practices.

Figure 6-12: Fones Cliffs Landslide May 24, 2018

Source: Friends of the Rappahannock https://riverfriends.org/landslide-at-fones-cliff-caused-by-inadequate-controls/

6.3.11 – Drought

A drought is when an unusual scarcity of rain causes a severe hydrological imbalance in which water supply reservoirs empty, water wells dry up, and crop damage ensues. A prolonged period of drought may or may not accompany periods of extreme heat. Drought is a complex physical and social process that can vary nationally. Unlike floods, droughts are not a specific event and typically do not have a well-defined start or end date.

- A drought can last for months or years or may be declared after as few as 15 days. Droughts are classified based on meteorological, agricultural, hydrological, and socio-economic effects:
- A meteorological drought is an extended period (six or more months) with precipitation of less than 75% of normal. Meteorological drought usually precedes other types of droughts.
- Arid conditions characterize agricultural droughts during the growing season. A traditional agricultural drought is caused by an extended period of below-average precipitation.
- Hydrological drought occurs when water reserves available in aquifers, lakes, and reservoirs fall below the statistical average. Hydrological drought tends to emerge more slowly because it involves stored water that is used but not replenished.

- Socio-economic droughts result from water shortages that limit the ability to supply water-dependent products in the marketplace.

6.3.11.1 – Type and Location

Agricultural droughts are the most common form of drought in the Northern Neck Region and pose the greatest threat to the region's agricultural operations. High summer temperatures can exacerbate the severity of a drought. When soils are wet, a significant portion of the sun's energy goes toward the evaporation of the ground moisture. However, when drought conditions eliminate soil moisture, the sun's energy heats the ground surface, and temperatures can soar, further drying the soil. Figure 6-12 summarizes the levels of drought severity and their possible impacts on a community.

Figure 6-13: Drought Severity Classification and Possible Impacts

Category	Description	Possible Impacts
D0	Abnormally Dry	Going into drought: • short-term dryness slowing planting, growth of crops or pastures Coming out of drought: • some lingering water deficits • pastures or crops not fully recovered
D1	Moderate Drought	• Some damage to crops, pastures • Streams, reservoirs, or wells low, some water shortages developing or imminent • Voluntary water-use restrictions requested
D2	Severe Drought	• Crop or pasture losses likely • Water shortages common • Water restrictions imposed
D3	Extreme Drought	• Major crop/pasture losses • Widespread water shortages or restrictions
D4	Exceptional Drought	• Exceptional and widespread crop/pasture losses • Shortages of water in reservoirs, streams, and wells creating water emergencies

Source: United States Drought Monitor

The Drought Monitoring Task Force (DMTF) is a Commonwealth of Virginia interagency group of technical representatives from state and federal agencies responsible for monitoring natural resource conditions and the effects of drought on people, businesses, and natural resources. When activated, the Drought Task Force meets to assess conditions and make recommendations regarding drought status. The Task Force periodically releases Drought Status Reports summarizing drought conditions in the Commonwealth. Through the DMTF, the group can make recommendations for declaring four Drought Stages based on how the measured groundwater levels compare to historical levels: Normal, Watch, Warning, and Emergency. Each Drought Stage involves a list of response activities generally initiated when a specific Drought Stage declaration is made[3].

Table 6-13 summarizes the 2017 US Census of Agriculture information by county in the Northern Neck Region. As of 2017, a total of 401 farms produces more than $77 million in regional agricultural production annually.

[3] National Oceanic and Atmospheric Administration (NOAA) National Climatic Data Center, Climate at a Glance

The 2022 US Census of Agriculture was ongoing during the 2023 plan update; therefore, 2017 data was used (the most current information available).

Table 6-13: 2017 U.S. Census of Agriculture General Information by County

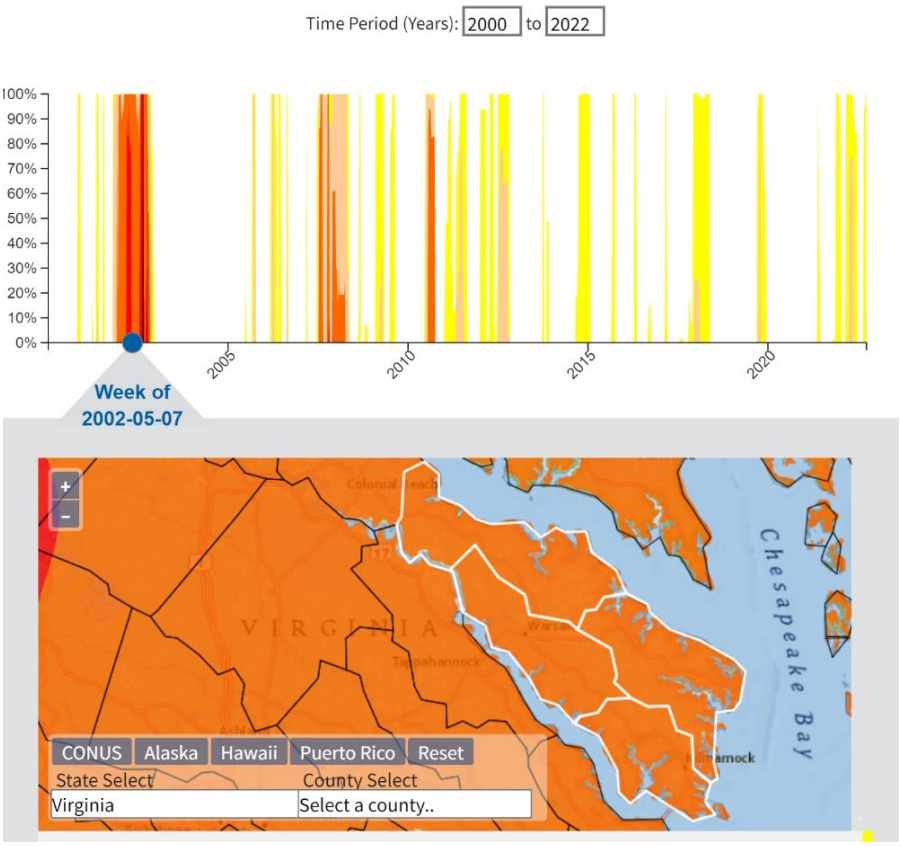
Jurisdiction	Number of Farms	Land in Farms (Acres)	Average Size of Farm (Acres)	Market Value of Products	Average Value Per Farm
Lancaster	80	16,238	203	$5,555,000	$860,073
Northumberland	134	43,480	324	$20,052,000	$975,400
Richmond	98	31,952	326	$16,814,000	$1,289,515
Westmoreland	183	52,619	288	$57,092,000	$1,073,155
NNPDC	495	144,289	285.25	$99,513,000	$1,049,536

Source: 2017 U.S. Census of Agriculture

6.3.11.2 – Previous Occurrences

Historically, Virginia droughts have tracked somewhat consistently with precipitation levels, whether a limited drought or a longer-term agricultural drought. The Northern Neck Region last saw a severe (D-2) drought in August of 2010, this affected the entire region and surrounding areas.

Figure 6-14: Historical Drought Conditions in the Northern Neck Region 2000-2022



Source: U.S. Drought Monitor: https://droughtmonitor.unl.edu/DmData/TimeSeries.aspx

According to the NCEI database, three recorded droughts between 1996-1998 have affected all the Northern Neck Regional jurisdictions. Table 6-14 lists the most significant droughts that impacted the Northern Neck Region, which occurred several decades ago. No further occurrences are recorded in the NCEI database. Figure 6-13 above, illustrates periods of drought in the Northern Neck Region from 2000 to June 30, 2022. A drought is a cyclical event dependent upon precipitation amounts, humidity, and temperatures.

Table 6-14: Previous Occurrences of Drought Events in the Northern Neck Region

Event Date	Hazard History
September 1, 1997	A very dry period from May through September resulted in drought-like conditions across much of central and eastern Virginia. Of the four Northern Neck Region's counties, Lancaster reported $1,880,000 in crop damages because of this drought.
October 1, 1998	A very dry period from July through October resulted in drought-like conditions across much of the eastern piedmont and Northern Neck Region of Virginia. The four Northern Neck Regional counties reported a total of $8 million in crop damage because of this drought.
November 1, 1998	Drought-like conditions continued to affect much of the eastern Piedmont and Northern Neck Region through November. This was the fifth month in a row that drought conditions were seen across Northern Virginia. Persistent high pressure over the Southeast U.S. forced rain producing low pressure systems to steer north of the region. There was an additional $4 million in reported crop damage in the Northern Neck Region. This was the first year the USDA Farm Service Agency had to make direct payments for grazing losses. The extended drought damaged root systems of grass and was expected to influence the 1999 hay crop. The drought also contributed to a high frequency of forest and brush fires.
August 10, 2010	Westmoreland and Northumberland seek emergency declarations from the Governor for drought conditions that had been affecting the area since April of 2010. The drought lasted well into the fall and USDA declared a disaster in 59 counties across the Commonwealth, including Lancaster, Northumberland, Westmoreland, and Richmond on November 4, 2010.
October 10, 2019	A drought watch advisory was issued across VA by the Department of Environmental Quality after a prolonged period of heat and lack of precipitation that started in July of 2019. Northern Neck Region localities issued prolonged burn bans and Fall/winter crop planting was delayed due to severely low subsoil moisture. Livestock farmers were forced to begin feeding hay earlier in the season due to poor grazing fields in Westmoreland and Richmond. The soil in Lancaster County was too dry to plant wheat and the corn crops suffered decreasing some farmer's incomes 30-40%. Soybean crops suffered a 14% loss as well.

Source: NCEI Storm Events Database, FEMA ArcGIS Mapping US Drought Intensity Layer

6.3.12 - Heatwave

The NCEI is the utilized source that provided dates of heatwave events and does not present records of a heatwave since 2017, however it shows three events from 1996-2012. The NRI notes nine occurrences between 2005-2017 but specific dates for those events are not available. Data to date is only located for the three within the NCEI, as stated below. The NRI estimates that the Northern Neck Region communities can expect to suffer one heat wave per year (0.7/year). Much of the risk in heat waves is to the population, primarily vulnerable populations, and persons with functional access needs. The climate and coastal location of the region contribute to high humidity that will increase the effects of high heat indexes, raising the hazards associated with heat waves.

6.3.12.1 – Type and Location

A heat wave and heat-related events would most likely affect the entirety of the region. Heat-related events could be one day of extreme heat expanding to multiple days. Such events can cause schools and facilities without adequate air conditioning to close, leaving citizens without means to cool their homes and needing assistance such as a cooling shelter.

6.3.12.2 – Previous Occurrences

There are 3 noted heatwave incidents in the NCEI database as noted in Table 6-15 below.

Table 6-15: Historical Heatwave Events in the Northern Neck Region

Date	Details
05/18/1996	An early-season four-day heat wave produced record or near record high temperatures across central and eastern Virginia. High temperatures were in the 80s and low 90s across the region on May 18. Then, on May 19, May 20, and May 21, high temperatures were in the 90s throughout the area. May 20 was the hottest of the four days as readings climbed into the mid to upper 90s. Also, Norfolk international airport set a record with 98 degrees and Farmville (co-op observer station) set a record with 96 degrees. Unfortunately, though, the heat wave was responsible for numerous reports of heat exhaustion and forced many non-air-conditioned schools to close or have early dismissals.
07/21/2011	An extended period of excessive heat and humidity occurred across most of central and eastern Virginia from July 21st to July 23rd. High temperatures ranged from 96 to 103 degrees during the afternoons, with heat index values ranging from 110 to 119. Overnight lows only fell into the lower 70s to lower 80s.
07/05/2012	High Pressure centered just to the west of the Middle Atlantic Region produced hot and humid weather over central and eastern Virginia from July 5th through July 8th. High temperatures ranged from the mid-90s to lower 100s, and low temperatures ranged from the mid-70s to lower 80s across the area.

Source: NCEI Storm Events Database

Though there are limited records of heatwave events mitigation and planning efforts should remain vigilant as climate patterns evolve and the risk of heatwaves and its effects on the communities grows. A data gap

was noted during the hazard assessment and HMWG members took note of the need to record additional data in the face of incidents such as heatwave that are often not reported upon outside of individual jurisdictions.

6.3.13 – Earthquake

The earth's surface is covered by solid rock approximately 50 miles thick, referred to as the lithosphere. The lithosphere comprises the earth's crust, which ranges in size from about 22 miles thick for continents to about five miles thick for the oceans, and the upper mantle, which is composed of solidified magma. This lithosphere "floats" above a thick layer of molten rock known as the lower mantle. The lithosphere is divided into large and small sections that geologists call plates. Earthquakes occur when those geologic plates slide against each other, resulting from the sudden release of energy that creates seismic waves. Most movements between plates are minimal, generating tiny earthquakes that people cannot sense. However, other less frequent activities between plates can be quite large, generating powerful earthquakes that can shake the ground surface and cause widespread damage. Earthquakes can be violent enough to destroy whole cities.

The term "earthquake" is used to describe any seismic event, whether natural or caused by humans, that generates seismic waves. Earthquakes are caused mainly by the rupture of geological faults and other events such as volcanic activity, landslides, mine blasts, and nuclear tests. An earthquake's point of initial break is called its focus or hypocenter. The epicenter is the point at ground level directly above the hypocenter.

Most earthquakes occur at weak points in the earth's crust along surfaces where two or more geologic plates meet, called faults. Significant faults within the earth's crust result from the action of plate tectonic forces, with the largest forming the boundaries between the plates. Therefore, the location of faults can indicate where future earthquakes are likely to occur. Some of the more active earthquake faults in the United States include the San Andreas Fault in California and the New Madrid Fault in the Midwest.

6.3.13.1 – Type and Location

Earthquakes in the United States occur most frequently along the West Coast, where both convergent and transform plate boundaries are present. However, earthquakes also occur along the East Coast of the United States, but the mechanisms causing these earthquakes are not well understood, as these occur within the plate rather than at plate boundaries.

According to the USGS *"Science of Earthquakes,* scientists have tried many ways of predicting earthquakes, but none have been successful. On any fault, scientists know there will be another earthquake sometime in the future, but they have no way of telling when it will happen.

Figure 6-15: Mercalli Scale

Intensity	Shaking	Description/Damage
I	Not felt	Not felt except by a very few under especially favorable conditions.
II	Weak	Felt only by a few persons at rest,especially on upper floors of buildings.
III	Weak	Felt quite noticeably by persons indoors, especially on upper floors of buildings. Many people do not recognize it as an earthquake. Standing motor cars may rock slightly. Vibrations similar to the passing of a truck. Duration estimated.
IV	Light	Felt indoors by many, outdoors by few during the day. At night, some awakened. Dishes, windows, doors disturbed; walls make cracking sound. Sensation like heavy truck striking building. Standing motor cars rocked noticeably.
V	Moderate	Felt by nearly everyone; many awakened. Some dishes, windows broken. Unstable objects overturned. Pendulum clocks may stop.
VI	Strong	Felt by all, many frightened. Some heavy furniture moved; a few instances of fallen plaster. Damage slight.
VII	Very strong	Damage negligible in buildings of good design and construction; slight to moderate in well-built ordinary structures; considerable damage in poorly built or badly designed structures; some chimneys broken.
VIII	Severe	Damage slight in specially designed structures; considerable damage in ordinary substantial buildings with partial collapse. Damage great in poorly built structures. Fall of chimneys, factory stacks, columns, monuments, walls. Heavy furniture overturned.
IX	Violent	Damage considerable in specially designed structures; well-designed frame structures thrown out of plumb. Damage great in substantial buildings, with partial collapse. Buildings shifted off foundations.
X	Extreme	Some well-built wooden structures destroyed; most masonry and frame structures destroyed with foundations. Rails bent.

Source: United States Geological Survey: https://www.usgs.gov/products/data

Figure 6-16: Intensity vs Magnitude

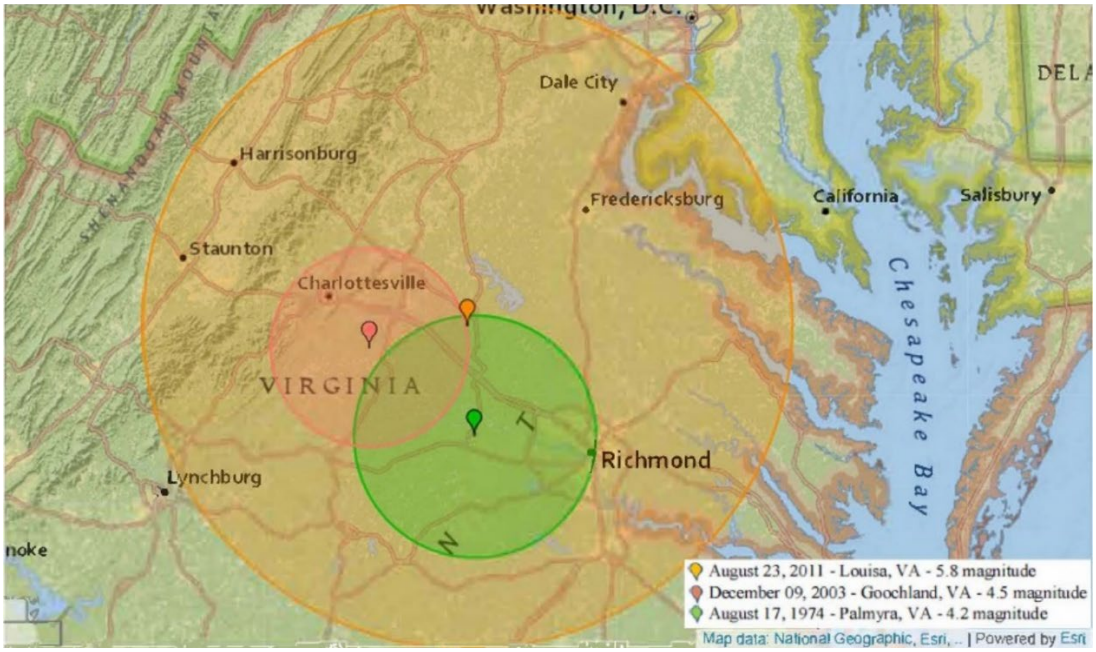
PERCEIVED SHAKING	Not felt	Weak	Light	Moderate	Strong	Very strong	Severe	Violent	Extreme
POTENTIAL DAMAGE	none	none	none	Very light	Light	Moderate	Moderate/Heavy	Heavy	Very Heavy
PEAK ACC.(%g)	*<.17*	*.17-1.4*	*1.4-3.9*	*3.9-9.2*	*9.2-18*	18-34	34-65	65-124	>124
PEAK VEL. (cm/s)	<0.1	0.1-1.1	1.1-3.4	3.4-8.1	8.1-16	*16-31*	*31-60*	*60-116*	*>116*
INSTRUMENTAL INTENSITY	I	II-III	IV	V	VI	VII	VIII	IX	X+

Source: United States Geological Survey: https://www.usgs.gov/products/data

6.3.13.2 – Previous Occurrences

Since 1900, there has been no record of an earthquake having its epicenter within the boundaries of the Northern Neck Region. The earthquake on August 23, 2011, with an epicenter in Louisa County, Virginia, resulted in a Federal Disaster Declaration in nine jurisdictions and was felt as far north as Vermont. Due to the orientation of the fault, this earthquake was minimally felt in the Northern Neck Region. Figure 6-16 shows the location of past earthquakes in the Commonwealth relative to the Northern Neck Region.

Figure 6-17: Historical Earthquakes



Source: Virginia Tech Seismological Observatory

6.4 Identifying Hazards of Concern

The table on the following pages lists the hazards, describes the rationale for identifying (or not identifying) hazards as significant, shows sources of information that were consulted for the determination.

It also indicates the hazards identified by NNPDC for a detailed risk assessment.

Table 6-16: Northern Neck Regional Hazard Identification

Hazard	Identified Natural Hazard?	Rationale	Sources	Detailed Risk Assessment?
Tornado	Yes	Widespread impacts, history of occurrences in the county, significant damages Increasing frequency.	NCEI; HAZUS; NRI:	Yes

Hazard	Identified Natural Hazard?	Rationale	Sources	Detailed Risk Assessment?
Severe Weather (Thunderstorms, Hail, High winds, Lighting)	Yes	Severe sudden storms often increase in severity with little to no warning. The proximity to several bodies of water increases the risk of flash flooding and the outdoor recreation in the area increase the risk for lightning strike casualties. High winds pose a greater risk to utility interruptions, debris, and downed trees.	NCEI; HAZUS; NRI	Yes
Wildfire	Yes	Relatively low annual probability for a significant size event, but potential for substantial consequences	VDOF, USGS	Yes
Coastal Flooding	Yes	The entire region is surrounded by the Chesapeake Bay and its tributaries. An abnormally high tide causes inundation of some areas without other hazards increasing the water levels. Coastal storms, rising sea level, and climate change all increase the damage potential. Damage estimates are substantial in flooding events.	NCEI; HAZUS; NRI; USGS; VA Coastal Resilience Master Plan	Yes
Riverine Flooding	Yes	High annual probability with impacts potentially severe in site specific areas. Severe thunderstorms cause pluvial flooding issues. Coastal storms cause water trapping increasing flood levels and prolonging the period.	NCEI HAZUS; NRI;	Yes
Winter Weather	Yes	High annual probability, widespread impacts, but losses generally limited except in most extreme events.	NCEI; NRI;	Yes

Hazard	Identified Natural Hazard?	Rationale	Sources	Detailed Risk Assessment?
Hurricane/Tropical Storm	Yes	High annual probability, widespread impacts, losses are great when affected by a storm of this nature.	NCEI; HAZUS, NRI;	Yes
Coastal Erosion	Yes	Low to moderate annual probability with impacts relatively substantial over time. Coastal erosion increases in conjunction with other coastal events such as hurricanes and Nor'easters.	NCEI; Virginia Coastal Resiliency Master Plan; CCRFR;	Yes
Drought	Yes	High annual probability, but impacts generally limited	NCEI; NRI;	Yes
Pluvial Flooding	Yes	Moderate to high annual probability, Impacts significant in areas with poor drainage or proximity to bodies of water. Flash flooding risk increases risk of casualties.	NCEI; NRI;	Yes
Landslide	Yes	Low Probability but noteworthy due to certain landscape aspects.	NRI	Yes
Drought	Yes	High annual probability, with high agricultural risk, but impacts are generally limited.	NCEI; USDA; NRI;	Yes
Heatwave	Yes	Relatively high annual probability, but impacts are limited	NCEI; NRI;	Yes
Earthquake	Yes	Low probability, low risk of effects.	NCEI; USGS; HAZUS	Yes

Note: See Appendix B (Section 6) for a complete listing of all sources.

6.5 High Hazard Potential Dams

6.5.1 Risks of High Hazard Probability Dams in the Northern Neck Region

Dams are manufactured structures that serve a variety of uses such as flood protection, power production, agriculture, water supply, and forming recreational areas. They are typically constructed of earth, rock, or concrete and come in all shapes and sizes. The Commonwealth of Virginia's Hazard Mitigation Plan of March 2018, Chapter 3.11 "Flooding Due to Impoundment Failure" reports dam failure as the uncontrolled release of impounded water or sludge resulting in downstream flooding causing secondary impacts threating lives and property. Dams can fail because water heights or flows are above the capacity the structure was designed for (including flooding) or because the structure failed in some way. Structures fail for many reasons, including lack of maintenance, erosion, seismic events, insufficient design, development

or alteration of the floodplain, or improper construction. Concrete/masonry dams usually fail from the loss of a section or undermining, while the primary causes of earthen dam failure are overtopping, piping failure, and foundation failure. In addition, concrete or masonry dams tend to fail suddenly, while earthen dams usually take longer. Human factors must also be considered in this portion of the risk assessment as negligent operation and acts of terrorism are risk factors to be taken seriously.

A levee or floodwall is defined as a "man-made structure, usually an earthen embankment, designed and constructed in accordance with sound engineering practices to contain, control, or divert the flow of water to reduce the risk from temporary flooding." Levees that meet protection standards to a minimum of the 100-year annual flood chance may be eligible for accreditation by FEMA. With accreditation, the area around the levee shown on a FIRM map will be re-zoned as "moderate" risk instead of "high" risk. There is not an accredited levee in the Northern Neck Region.

Dam Hazard Potential Classifications

The Virginia Department of Conservation and Recreation maintains the Division of Dam Safety and Floodplain Management (DSFPM). The Northern Neck PDC and jurisdictions strive to maintain an open working relationship with DCR to ensure that dams located within the region are mitigated to decrease the threat of future life-threatening incidents.

Dam safety inspections and monitoring have become essential tools in evaluating dam failure risk, ensuring proper maintenance, and prioritizing actions. The ranking of assessments is often based on a classification system according to the potential impact a dam failure or mis operation would have on nearby populations and property. Virginia and FEMA utilize a Hazard Potential Classification System for dams that categorize them as Low, Significant, or High. Table 6-17 presents the dam classification system in Virginia, with the inspection guidelines that DCR and the Dam Safety Program utilizes.

Table 6-17: Dam Classification System in Virginia

Hazard Potential	Description	Inspection
High (Class I)	Failure will cause probable loss of life or serious economic damage (to buildings, facilities, major roadways, etc.)	Annual, with inspection by a professional engineer every 2 years.
Significant (Class II)	Failure may cause loss of human life or appreciable economic damage (to buildings, secondary roadways, etc.)	Annual, with inspection by a professional engineer every 3 years.
Low (Class III)	Failure would result in no expected loss of human life, and cause no more than minimal economic damage.	Annual, with inspection by a professional engineer every 6 years.

Source: The Commonwealth of Virginia Hazard Mitigation Plan, March 2018: Table 3.11-1

Owners of dams classified based on Table 6-17 are required to obtain assessment by a licensed professional and an Emergency Actions Plan, in addition to applying for an Operation and Maintenance Certificate through DCR. The emergency actions plan must be filed with the local administrative agency and VDEM. Table 6-18 identifies the list of dams, and pertinent available information, present in the Northern Neck Region.

Table 6-18: Dams in the Northern Neck Region

Dam & (Other Name)	ID #	Hazard Classification	Location	Owner	Dam Type
Twin Branch Milldam (Davis Millpond)	103001	Unknown	Lancaster County	F. Martin, T. Little, Vernon Grammar	Earth
Lancaster Roller Mill Dam	103002	Unknown	Lancaster County	Not listed	Earth
Stevens Dam	103003	Unknown	Lancaster County	Not Listed	Earth
Golden Eagle Dam (Stevens or Stephens Dam)	103004	LOW	Lancaster County	Not Listed	Earth
Balls Millpond Dam	103005	Unknown	Lancaster County	Not Listed	Earth
Marsh Dam	103006	Unknown	Lancaster County, Richmond County	Not Listed	Earth
Blackmore Millpond Dam (Blakemore Millpond Dam)	103007	Unknown	Lancaster County	Not Listed	Earth
Chinns Dam	159001	Unknown	Lancaster County, Richmond County	Not Listed	Earth
Lancaster County Dam #1	103008	Unknown	Lancaster County	Not Listed	Not listed
Lancaster County Dam #2	103009	Unknown	Lancaster County	Not Listed	Not Listed
Lancaster County Dam #3	103010	HIGH	Lancaster County	Janet Sowder	Not Listed
Fisher Quarry Dam	103011	Unknown	Lancaster County	Theodore Fishers and Sons	Earth
Falling Mill Dam	133001	Unknown	Northumberland County	Not Listed	Earth
Clarks Mill Dam	133002	Unknown	Northumberland County	Not Listed	Earth
Sydnors Millpond Dam	133003	Unknown	Northumberland County	Not Listed	Earth
Hale Dam	133004	Unknown	Northumberland County	Not Listed	Earth
Courtney Millpond Dam (Kissinger Road Dam)	133005	Unknown	Northumberland County	Not Listed	Earth
Hurst Dam	133006	Unknown	Northumberland County	Not Listed	Earth
Private Road Dam (Bogey Neck)	133007	Unknown	Northumberland County	Not Listed	Earth
Snowden Park Dam	133008	Unknown	Northumberland County	Not Listed	Earth
Headleys Mill Pond Dam	133009	Unknown	Northumberland County	Not Listed	Earth
Gardy Millpond	193008	LOW	Northumberland County, Westmoreland County	Virginia Department of Wildlife Resources	Earth
Northumberland County Dam #1 (133dd004)	133010	Unknown	Northumberland County	Not Listed	Not Listed

Flyway Lake Dam (Northumberland County Dam #1)	133011	Unknown	Northumberland County	Mallard Bay Property Association	Not Listed
Eagle Lake Dam (Mallard Bay Dam)	133012	Unknown	Northumberland County	Mallard Bay Property Association	Earth
Tipers Creek Pond	133013	Unknown	Northumberland County	Not Listed	Earth
Mount Airy Dam	159003	Unknown	Richmond County	Not Listed	Earth
Garland Millpond Dam	159002	SIGNIFICANT	Richmond County	Not Listed	Earth
Huggins Dam 2 (159dd002)	159011	Unknown	Richmond County	H.T. Huggins	Not Listed
Deland Dam	159004	Unknown	Richmond County	Not Listed	Earth
CBM Dam (159dd005)	159013	Unknown	Richmond County	CBM Investment, Inc.	Not Listed
Huggins Dam (159dd001)	159010	Unknown	Richmond County	H.T. Huggins	Not Listed
Lanier-Davis Dam	159007	Unknown	Richmond County	Not Listed	Earth
France Dam (159dd006)	159014	Unknown	Richmond County	Not Listed	Earth
Connellee Dam	159009	SIGNIFICANT	Richmond County	Trustees of Robert H. and Elsie Gruver	Earth
Marshall Dam	159005	Unknown	Richmond County	Not Listed	Earth
Huggins Dam 3 (159dd003)	159012	Unknown	Richmond County	H.T. Huggins	Not Listed
Omohundra Millpond Dam	159006	Unknown	Richmond County, Westmoreland County	Not Listed	Earth
Hogans Mill Dam	159008	Unknown	Richmond County, Westmoreland County	Not Listed	Earth
Morris Dam (Potomac Mills Pond Dam)	193001	Unknown	Westmoreland County	Not Listed	Earth
Latanes Dam	193002	Unknown	Westmoreland County	Not Listed	Earth
Flemmer Dam	193003	Unknown	Westmoreland County	Not Listed	Earth
Lake Independence Dam	193004	SIGNIFICANT	Westmoreland County	Not Listed	Earth
Horners Dam	193005	Unknown	Westmoreland County	Edward and Jeanne Mella	Earth
Placid Lake Dam	193006	LOW	Westmoreland County	Placid Bay Civic Association & Westmoreland County	Earth
Thomas Branch Dam	193007	Unknown	Westmoreland County	Walter Hendricks	Earth
Marshall Creek Dam	193009	Unknown	Westmoreland County	Not Listed	Earth
Newtons Dam	193010	Unknown	Westmoreland County	Not Listed	Earth

Chandler's Mill Dam	193011	HIGH	Westmoreland County	Private/Virginia Department of Wildlife Resources	Earth
Travis Dam	193012	Unknown	Westmoreland County	Not Listed	Earth
Weavers Dam	193013	Unknown	Westmoreland County	Not Listed	Earth
Red Oak Dam (Red Oak Nursery Dam)	193014	SIGNIFICANT	Westmoreland County	J. Clifford Hutt	Earth
Westmoreland County Dam #1 (193dd004)	193015	Unknown	Westmoreland County	Not Listed	Not Listed
Westmoreland County Dam #2 (193dd041)	193016	Unknown	Westmoreland County	Not Listed	Not Listed
Westmoreland County Dam #3 (193dd054)	193017	Unknown	Westmoreland County	Not Listed	Not Listed
Westmoreland County Dam #4 (193dd056)	193018	Unknown	Westmoreland County	Not Listed	Not Listed
Westmoreland County Dam #5 (193dd057)	193019	Unknown	Westmoreland County	Not Listed	Not Listed
Erica Road Dam	193020	Unknown	Westmoreland County	Belvior Farm, Inc	Earth

Source: Data provided by the Virginia Department of Conservation and Recreation, Dam Safety Program

6.5.2 Previous Occurrences of Dam Failures

There have been three recent dam failure events in the Northern Neck Region, all of them at the Chandler's Mill Dam in Westmoreland County which is located near the entrance to the Town of Montross. The dam faced a failure in 2015 after a severe storm destabilized the dam. The dam was then rebuilt with completion in August of 2020. On November 12, 2020, the dam did not face physical failure, but the falling rains caused water to overtop the embankments and subsequently flooding and closing Route 3. Repairs from the 2020 event had not yet been completed in June of 2021 when up to ten inches of rain fell across the Northern Neck Region in a 200-year storm event. The dam pond was empty, and outflows open at the start of the event, but the pond filled extremely fast, and water overtopped Route 3/Kings Highway at the lake crossing. The resulting water caused flash flooding and necessitated water rescue; Route 3 and Peach Grove Road was also closed in the face of potential instabilities.

Figure 6-18: Dam Failure at Chandlers Mill Dam

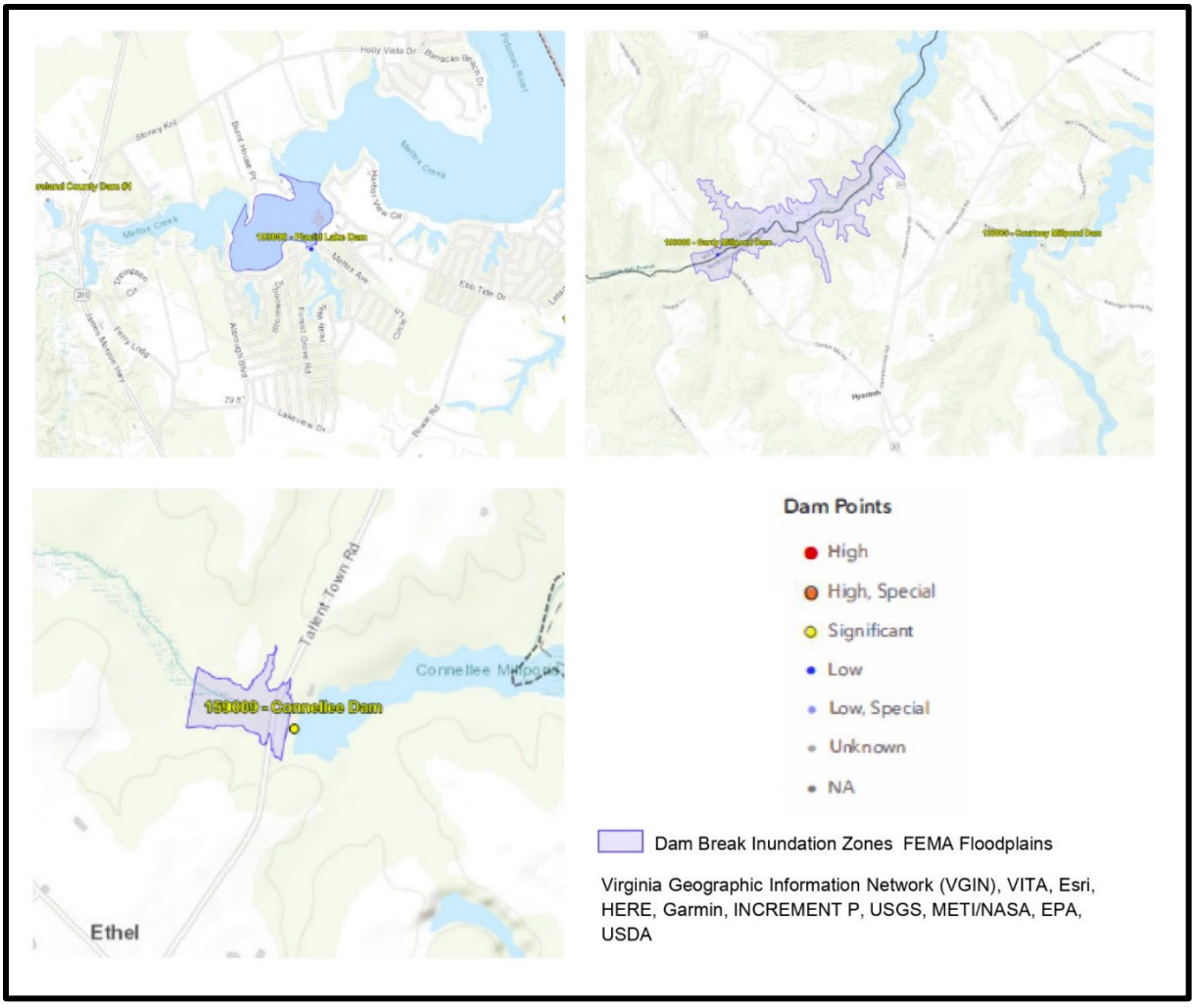
Source: News on the Neck

6.5.3 Probability of Future Risks and Failures

As shown in Table 6-18 there are a considerable number of dams in the Northern Neck Region, the classification of the majority of those is currently "unknown." Virginia's DSFPM is in the process of developing modified dam break inundation studies and emergency action plans for dams that currently do not have a regulatory classification. The critical information provided from those actions will allow local, regional, and state agencies greater planning abilities against unclassified dams. *FEMA Rehabilitation of High Hazard Potential Dams: Grant Program Guidance June 2020: Section 5.8.1.3* identifies three types of dam risks:

- Incremental – The risk (likelihood and consequences) to the pool area and downstream floodplain occupants that can be attributed to the presence of the dam should the dam breach prior or subsequent to overtopping, or undergo component malfunction or mis operation, where the consequences considered are over and above those that would occur without dam breach.
- The risk in the reservoir pool area and affected downstream floodplain due to 'normal' dam operation of the dam (e.g., large spillway flows within the design capacity that exceed channel capacity) or 'overtopping of the dam without breaching' scenarios.
- The risk that remains after all mitigation actions and risk reduction actions have been completed. With respect to dams, FEMA defines residual risk as "risk remaining at any time" (FEMA, 2015, p A-2). It is the risk that remains after decisions related to a specific dam safety issue are made and prudent actions have been taken to address the risk. It is the remote risk associated with a condition that was judged to not be a credible dam safety issue.

Figure 6-19: Dam Break Inundation Zones in FEMA Floodplains



Source: Virginia DCR VGIN Dam Break Inundation Zone Layer

Currently, available information is insufficient to conduct a thorough analysis of the HHPD inventory in the Northern Neck Region relative to incremental, non-breach, and residual risk. Participating jurisdictions and the Northern Neck PDC acknowledge the definitions of the risks as identified by FEMA and have integrated mitigation goals and actions into this Plan that will encourage growth and advancements to HHPD mitigation planning. Actions that will reduce long-term vulnerabilities are addressed in Section 9, Table 9-3, Actions 7 & 8. Action 7 addresses education and initiating planning processes, while Action 8 provides technical assistance from the PDC to jurisdictions to manage HHPD mitigation projects. Both actions are new to the Plan in 2023 and align with guidance from the *Fiscal Year 2021 Rehabilitation of High Hazard Potential Dams – Notice of Funding Opportunity (NOFO).* The 2023 plan does not include advanced statistics of occurrence or probabilities due to the current lack of information. The HHPD section of the plan has been written with the best available information at the time that the update was performed. This will be monitored with the annual reviews during plan maintenance and updates will be applied as seen fit and under the guidance of Virginia DSFPM.

6.6 Summary

As indicated in the above table, 13 natural hazards were identified as hazards of concern. As the regulations state, all these identified hazards must be profiled, their vulnerability assessed, and mitigation actions developed for them:

- Tornado
- Severe Weather Events
- Coastal Flooding
- Riverine Flooding
- Wildfire
- Winter Storm
- Hurricane/Tropical Storm
- Coastal Erosion
- Pluvial Flooding
- Landslide
- Drought
- Heatwave
- Earthquake

6.6.1 Summary Description of the County's Vulnerability to Hazards

The DMA 2000 legislation and related FEMA planning guidance require mitigation plans to discuss community vulnerability to natural hazards. Vulnerability is generally defined as the damage (including direct damage and loss of function) that occurs when various risks impact a structure, operation, or population. For example, vulnerability can be expressed as the percent damage to a building when it is flooded or the number of days a government office will be shut down after a windstorm, assuming sufficient detailed data is available to support the calculations.

Because this Plan includes multiple jurisdictions and the available data is not very detailed, it is not practical to complete vulnerability assessments on the many individual assets, operations, and populations in respective jurisdictions.

However, it is appropriate for participating jurisdictions embark on a program to address these data deficiencies over the next five years in anticipation of the following Plan update. In addition, it is possible to make general observations based on the hazard identifications and risk assessments that are the subjects of Sections 6 and 7 of this Plan.

As illustrated in Section 6 (Hazard Identification), the communities in the Northern Neck Region are subject to numerous natural hazards, human-caused, although in some cases, the hazards have rarely impacted the area, or their effects have been relatively minor. Although relatively localized, flooding, and severe storms are the most frequent and damaging natural hazards, as with many parts of the mid-Atlantic. However, it is crucial to recognize that several other hazards present significant risks (i.e., the potential for future losses) to the communities, even though they have occurred infrequently or have not caused much damage. Not all hazards carry the same weight risk. All hazards have some risk. The Northern Neck Planning District Commission and the Working Group Members strive to seek out proactive strategies.

Section 7
Risk Assessment

Contents of this Section

7.1 44 CFR Requirement for Risk Assessments

Requirement §201.6(c)(2): *The plan shall include a risk assessment that provides the factual basis for activities proposed in the strategy to reduce losses from identified hazards. Local risk assessments must provide sufficient information to enable the jurisdiction to identify and prioritize appropriate mitigation actions to reduce losses from identified hazards.*

Requirement §201.6(c)(2)(ii): *The risk assessment shall include a description of the jurisdiction's vulnerability to the hazards described in paragraph (c)(2)(i) of this section. This description shall include an overall summary of each hazard and its impact on the community.*

Requirement §201.6(c)(2)(ii): *The risk assessment]* ***must*** *also address National Flood Insurance Program (NFIP) insured structures that have been repetitively damaged floods.*

Requirement §201.6(c)(2)(ii)(A): *The plan* ***should*** *describe vulnerability in terms of the types and numbers of existing and future buildings, infrastructure, and critical facilities located in the identified hazard area.*

Requirement §201.6(c)(2)(ii)(B): *[The plan **should** describe vulnerability in terms of an] estimate of the potential dollar losses to vulnerable structures identified in paragraph (c)(2)(ii)(A) of this section and a description of the methodology used to prepare the estimate.*

Requirement §201.6(c)(2)(ii)(C): *[The plan **should** describe vulnerability in terms of] providing a general description of land uses and development trends within the community so that mitigation options can be considered in future land use decisions.*

Requirement §201.6(c)(2)(iii): *For multi-jurisdictional plans, the risk assessment **must** assess each jurisdiction's risks where they vary from the risks facing the entire planning area.*

7.2 Overview and Analysis of the Northern Neck Region's Vulnerability to Hazards

The hazard identification and risk assessment aim to provide a factual basis for developing mitigation strategies by prioritizing areas most threatened and vulnerable to natural hazards.

Multiple resources were used in obtaining a comprehensive dataset while assessing hazards for the Northern Neck Regional jurisdictions during the 2023 HMP hazard assessment review. Primary databases include the National Weather Service/National Oceanic and Atmospheric Administration's Storm Database at the National Center for Environmental Control (NCEI). NCEI provided the primary historical base data for most natural hazards. In addition, tools such as the National Risk Database, USGS Earthquake database, ArcGIS layers, and HAZUS were utilized to gather the best available data to encourage informed decision-making.

Hazards were ranked utilizing the Calculated Priority Risk Index (CPRI). The figures below, Figure 7-1: Calculated Priority Risk Index and Figure 7-1: CPRI Categories and Risk Levels, demonstrate the ranking process performed using the CPRI formula and present the CPRI categories and risk levels.

Figure 7-1: Calculated Priority Risk Index

NNPDC 2022-2023 HMP Update
Hazard Ranking Process

Calculated Priority Risk Index
CPRI

The Calculated Priority Risk Index (CPRI) combines user input and a mathematic equation to establish a ranking for each hazard.

There are four main criteria within the CPRI; *Probability, Magnitude/Severity, Warning Time*, and *Duration*. Each of these criteria are sub divided to further define and access the potential impact of the hazard.

These choices each represent a value from 0 to 4. Zero is the default value or the value utilized when an option is not assigned.

The CPRI is calculated based on the four selections with the following weightings for each criterion:

- Probability (P) = 45%
- Magnitude/Severity (M) = 30%
- Warning Time = 15%
- Duration (D) = 10%

Example:

.45(P) + .30(M) + .15(W) + .10(D) = CPRI #

The CPRI is subjective based on user selection of the criteria. The CPRI may be amended to reflect decisions by the Working Group.

Figure 7-2: CPRI Categories and Risk Levels

CPRI Category	Level ID	Degree of Risk Description	Index Value	Assigned Weighting Factor
Probability	Unlikely	• Rare with no documented history of occurrences or events. • Annual probability of less than 0.01.	1	45%
	Possibly	• Infrequent occurrences with at least 1 documented or anecdotal historic event. • Annual probability that is between 0.1 and 0.01.	2	
	Likely	• Frequent occurrences with at least 2 or more documented historic events. • Annual probability that is between 1 and 0.1	3	
	Highly Likely	• Common events with a well-documented history of occurrence. • Annual probability that is greater than 1.	4	
Magnitude /Severity	Negligible	• Negligible property damages (less than 5% of critical and non-critical facilities and infrastructure). • Injuries / illnesses are treatable with first aid with no deaths. • Negligible quality of life lost. • Shut down of critical facilities for less than 24 hrs.	1	30%
	Limited	• Slight property damages (greater than 5% and less than 25% of critical and non-critical facilities and infrastructure). • Injuries / illnesses do not result in permanent disability with no deaths. • Moderate quality of life lost. • Shut down of critical facilities for more than 1 day and less than 1 week.	2	
	Critical	• Moderate property damages (greater than 25% and less than 50% of critical and non-critical facilities and infrastructure). • Injuries / illnesses result in permanent disability and at least 1 death. • Shut down of critical facilities for more than 1 week and less than 1 month.	3	
	Catastrophic	• Severe property damages (greater than 50% of critical and non-critical facilities and infrastructure). • Injuries / illnesses result in permanent disability and multiple deaths. • Shut down of critical facilities for more than 1 month.	4	
Warning Time	Less than 6 hrs.	Self-explanatory	4	15%
	6 to 12 hrs.	Self-explanatory	3	
	12 to 24 hrs.	Self-explanatory	2	
	More than 24 hrs.	Self-explanatory	1	
Duration	Less than 6 hrs.	Self-explanatory	1	10%
	Less than 24 hrs.	Self-explanatory	2	
	Less than 1 week	Self-explanatory	3	
	More than 1 week	Self-explanatory	4	

7.3 Estimate of Potential Losses (Risk Assessment)

This section describes the risks to the Northern Neck Region, including its citizens, residential, government, and commercial assets, from the named hazards determined by the Northern Neck Regional Hazard Mitigation Steering Committee. As noted above, the term risk is an expression of expected future monetary losses that result from the impacts of natural hazards.

This subsection of the Plan provides estimates of future losses. Each loss calculation is based on the best available data, but they must be considered estimates because highly detailed engineering was not performed as part of this planning process.

7.3.1 Tornado Risk in the Northern Neck Region

As demonstrated in Section 6, tornados present an increasing risk to the communities in the region, noting an increase in frequency and, as a result, damages, and loss. Tornados present a significant threat to life.

7.3.1.1 Vulnerabilities

Table 7-1 demonstrates the estimated annualized damages for tornado events in the Northern Neck Region. The NCEI and NRI note an alarming increase in tornadic events and risk to property and life. It should be noted that tornado and high wind event frequencies have increased substantially in the last 20 years. In addition, increases in vulnerable populations and a decline in property upkeep contribute to the losses and level of damages incurred by tornadoes.

Table 7-1: Estimated Annualized Events

Tornadoes	Annualized Events	Annualized Property Damages	Annualized Crop Damages	Annualized Total Damages	Deaths	Injuries
Lancaster	1	$65,781	$108	$136,432	0.0	0.4
Northumberland	1	$106,726	$366	$188,467	0.0	0.4
Richmond	1	$51,601	$356	$117,815	0.0	0.4
Westmoreland	1	$102,364	$0	$184,576	0.0	0.4

A structure's tornado vulnerability is the same as other extreme wind events, which are based on building construction and standards. Other factors, such as location, condition, and maintenance of trees, also play a significant role in determining vulnerability. A tornado will cause severe damage or destruction to any structure in its path. Clusters of mobile homes are more vulnerable to tornadoes. Proper anchoring can reduce damage exposure, but not entirely, as these structures are extremely vulnerable to damage from downed trees and a tornado's effect on the structure of the manufactured home itself.

Human vulnerability is based on the availability, reception, and understanding of early warnings of tornadoes, such as warnings issued by the NWS and access to safe, substantial indoor shelters. Once warned of an impending tornado hazard, seeking shelter indoors on the lowest floor of a substantial building away from windows is recommended as the best protection. All populations and communities are at risk for tornado damages as there is little to no warning generally, structures in the region are generally not built with basements to move to, and the elevated number of aging populations will have difficulty moving themselves to a protected area. Agriculture and aquaculture facilities are at a particularly high risk for harvest and equipment loss.

Electrical utilities and communications infrastructure are also vulnerable to tornadoes. For example, damage to power lines or communication towers can cause power and communication outages for residents, businesses, and critical facilities. In addition to lost revenues, downed power lines threaten personal safety. Further, downed wires and lightning strikes have been known to spark fires.

Table 7-2: CPRI Tornado Hazard Priority

Probability	Magnitude	Warning Time	Duration	Total Score	Threat
1.35	0.9	0.9	0.1	3.25	Significant

7.3.1.2 Effects of Climate Change and Tornados

As demonstrated in the historical data presented, the occurrence of tornadoes in the Northern Neck communities has increased significantly over the last 20 years. Tornadoes are most often spawned by severe thunderstorms and considering the frequency of severe thunderstorms and coastal systems, the risk of additional tornados is considered significant. According to the Center for Climate and Energy Solutions, conditions that produce the most severe thunderstorms from which tornadoes may form are more likely as the world warms. Climate change may also cause a shift in the seasonality of severe thunderstorms and the regions that are most likely to be hit. The jurisdictions of the Northern Neck Region recognize the increasing risk and the need for education and awareness in the communities.

7.3.2 Severe Weather Risks in the Northern Neck Region

Severe weather includes thunderstorms, severe wind, lightning, and hail events outside of tropical storm systems.

The chance of future occurrences of high wind, hail, and lightning in the Northern Neck Region is high: and an average of seven events per year is expected based on data collected from the NCEI and NRI reports. In addition, hail may be expected once every 1-2 years on average and strong winds may be expected as frequently as all severe weather events, including thunderstorms, winter storms, and coastal storm events.

7.3.2.1 Vulnerabilities

Table 7-3 shows the annualized damages for severe weather events in the Northern Neck Region. The NCEI Storm Events data were annualized by dividing the number of severe weather events by the record length. The annualized values should only be used to estimate what can be expected each year. An individual county can expect to experience between one to two severe weather events annually using historical records. Therefore, the NNPDC can expect to see between five and six events annually. Annual total damages from these events for each county were estimated to be between $89,000 and $140,000. However, it is possible that actual annual damages in some counties could be higher due to unreported damages. There is a single reported injury though it should be considered that not all injuries would be reported. No casualties have been reported per the data utilized.

Communities in the Northern Neck Region have seen a steep increase in the severity of thunderstorms and severe weather that is not directly related to hurricanes or tropical systems. These storms are a very high concern for planning and response personnel as the best protection for these storms is community education and mitigation actions such as stormwater drainage and erosion prevention. Properties and citizens who live along the coast are open to high winds and flooding, and properties with debris and trees risk injury from projectiles. Access and functional needs populations will be at a higher risk during these events as they may lose power for medical devices or be unable to call for help or escape on their own from a dangerous situation.

Table 7-3: Estimated Annualized Loss in the Northern Neck Region

Severe Weather	Annualized Events	Annualized Property Damages	Annualized Agriculture Value	Annualized Total Damage	Deaths	Injuries
Lancaster	7	$53,083	$3,013	$89,529	0	0.11
Northumberland	7	$71,733	$11,195	$139,544	0	0.11
Richmond	7	$16,738	$1,717	$103,046	0	0.11
Westmoreland	7	$32,030	$0	$91,409	0	0.11

The priority hazard ranking process for the 2023 hazard risk assessment determined severe weather events to be a “significant” hazard to the Northern Neck Region’s communities. Severe weather events within the region pose greater risks as the events are often associated with more severe effects, bringing additional hazards such as tornadoes, high levels of rainfall, and pluvial flooding.

Table 7-4: CPRI Severe Weather Hazard Priority

Probability	Magnitude	Warning Time	Duration	Total Score	Threat
1.8	0.6	0.3	0.20	2.9	Significant

7.3.2.2 Effects of Climate Change and Severe Weather Events

Many severe weather events have affected the communities of the Northern Neck Region, some have even caused damage that exceeded that of coastal storms. According to the EPA, rising global average temperature is associated with widespread changes in weather patterns. Studies indicate that extreme weather events such as heat waves and large storms are likely to become more frequent or more intense.

7.3.3 Coastal Flooding Risk in the Northern Neck Region

The extensive coastal areas of the Northern Neck Region are considered equally at risk of experiencing the damaging effects of future coastal flooding events. Inland areas where waves and currents aren't as prominent of a threat, many of those areas still have rivers where coastal tides and water trapping may influence levels during storms. The coastal storms, coastal erosion, sea level rise, and increasing tidal volumes present growing concerns and risks for the communities. Table 7-5 displays the annualized damages for coastal flooding in the Northern Neck Region. The NCEI Storm Events database and the National Risk Index Community Risk Report were utilized for the data in Table 7-5. The NNPDC can expect an average of four coastal flooding events per year.

Damages from these events for each county were between $107,000 and $1,959,692. It is important to note that the losses and casualties noted here may be lower than actual as not all may have been reported.

Table 7-5: Expected Annual Loss from Coastal Flooding

Coastal Flooding	Annualized Events	Annualized Property Damages	Annualized Agriculture Value	Annualized Total Damage	Deaths	Injuries
Lancaster	4.4	$1,542,957	$0	$1,548,667	0	0
Northumberland	4.4	$1,959,692	$0	$1,965,226	0	0
Richmond	4.4	$331,574	$0	$333,574	0	0
Westmoreland	4.4	$103,906	$0	$107,930	0	0

Comparatively, in the Virginia Coastal Resilience Master Plan the loss statistics are higher as noted below. Datasets vary widely and Table 7-5 is based on the NRI which compares data nationally, where the Virginia CRMP notes recent research and a localized approach to present a specific picture. The annual average loss data for each locality is noted below:

- Lancaster: $2 million at year 2020
- Northumberland: $10.5 million at year 2020
- Richmond: $2 million at year 2020
- Westmoreland: $5 million at 2020

7.3.3.1 Vulnerabilities

The low-lying coastal areas of the Northern Neck Region are most vulnerable to the damaging effects of storm surges due to nor'easters and Hurricanes and above-average tidal flooding. Non-elevated structures built before the 1980s, when National Flood Insurance Program (NFIP) building standards were adopted, are especially vulnerable to damage. Storm surge has the potential to cause damage to foundations of structures, damage contents, cut off utilities such as power, damage infrastructures such as bridges and roads, and cause extensive beach erosion. Coastal erosion will be addressed as a separate hazard in Section 7.3.8. Many of the same vulnerabilities and impacts to people and property described in the riverine flooding section also apply to coastal flooding.

The priority hazard ranking process for the 2023 hazard risk assessment identified that coastal flooding remains a significant threat to the Northern Neck Region. Coastal flood events within the region are increasing in frequency; from 1998 to 2010, four events were recorded (33%), whereas from 2011 to June

30, 2022, nine events were recorded (78%). Coastal storm events have a high range of impacts with the potential for millions of dollars in damages to property and a significant risk of casualties. Table 7-6 outlines the hazard ranking for each of the hazard priority criteria related to coastal flooding.

Flooding most often damages property and land mass. Flash flooding presents a high risk to life especially when waters are rising quickly. Generally coastal residents are advised to evacuate when coastal flooding is forecasted. Populations that choose not to evacuate, citizens who are incapable of doing so on their own, and other institutions such as medical or assisted living facilities pose a challenge to emergency management staff. Northumberland, Westmoreland, and Lancaster face the highest risk with the large coastal boarders they serve.

Table 7-6: CPRI Coastal Flooding Hazard Priority

Probability	Magnitude	Warning Time	Duration	Total Score	Threat
1.8	0.6	0.15	0.3	2.85	Significant

7.3.3.2 Effects of Climate Change and Coastal Flooding

The Impact of Climate Change on Virginia's Coastal Areas states "For Virginians living on the coast, the immediate consequences will be rising sea levels, more intense and frequent storms, and warmer and more variable local temperatures. These primary drivers translate into recurrent flooding, saltwater intrusion into drinking water, inundation of septic systems, and threats to public health, among other issues." This speaks to the risks that coastal communities in the Northern Neck are facing in the future as sea-level rises. Jurisdictions are utilizing multiple sources of guidance and resources to mitigate shoreline erosion. Green spaces, living shorelines, and restrictions to development in the SFHA are at the forefront of mitigation actions.

7.3.4 Riverine Flooding Risk in the Northern Neck Region

The Northern Neck Region is bordered by the Potomac River, the Rappahannock River, and the Chesapeake Bay. The proximity of multiple large rivers to this region puts it at high risk of experiencing riverine flooding. In addition, annual rainfall amounts in the region have increased by 3" since the 2017 update, according to data from the NCEI database. The increased rainfall amount and the frequency of severe storms will continue to increase the risk of riverine flooding in the region.

Riverine and flash floods have the potential to pick up chemicals, sewage, and toxins from roads, factories, and farms; therefore, any property affected by a flood may be contaminated with hazardous materials and present a health and safety risk to residents. Debris from vegetation and structures may also become hazardous after a flood. In addition, floods may threaten water supplies and quality, creating health issues like mold. Damages from stormwater runoff events also include wall damage due to "wicking," mildew damage, damages to building contents, minor foundation damage, damage to water distribution systems, and potable water contamination. Public-related costs include debris clearance; equipment, material, and labor expenses related to emergency response; and building or facility repair or replacement (county parks, utilities, communications, buildings, vehicles, etc.).

Table 7-7: Expected Annual Loss from Riverine Flooding

Coastal Flooding	Annualized Events	Annualized Property Damages	Annualized Agriculture Value	Annualized Total Damage	Deaths	Injuries
Lancaster	0.3	$379,069	$83	$389,830	0	0
Northumberland	0.3	$349,149	$200	$351,081	0	0
Richmond	0.7	$40,061	$1243	$47,362	0	0
Westmoreland	0.5	$12,681	$0	$30,411	0	0

7.3.4.1 Vulnerabilities

Development, or the presence of people and property in hazardous areas, is critical in determining vulnerability to flooding. In addition, riverine flooding often occurs as a flash flood with little warning and evacuation time, increasing the chance of casualties. Additional factors that contribute to flood vulnerability range from specific characteristics of the floodplain to characteristics of the structures located within the floodplain and are further explained in the FEMA Flood Zones section below.

The priority hazard ranking process for the 2023 hazard risk assessment determined riverine flooding as a "significant" hazard in the Northern Neck Region. Flood events in the region vary with the type of event. For example, riverine flooding can occur with severe weather, such as thunderstorms with high rainfall amounts in short periods with little to no warning, and a coastal storm that can cause water trapping. The unpredictability of flooding mandates vigilance in mitigation activities.

Table 7-8: CPRI Riverine Flooding Hazard Priority

Probability	Magnitude	Warning Time	Duration	Total Score	Threat
1.8	0.6	0.15	0.20	2.75	Significant

7.3.4.2 Effects of Climate Change and Riverine Flooding

Climate change may cause river floods to occur more often and be more significant than they used to be. The EPA notes that "as warmer temperatures cause more water to evaporate from the land and oceans, changes in the size and frequency of heavy precipitation events may in turn affect the size and frequency of river flooding." River flooding can cause significant losses in some communities in the Northern Neck and the communities continue to mitigate against the risks.

7.3.5 FEMA Flood Zones in the Northern Neck Region

Additional factors that contribute to flood vulnerability range from specific characteristics of the floodplain to characteristics of the structures located within the floodplain. Those factors include:

- *Flood depth*: The greater the depth of flooding, the higher the potential for significant damages.
- *Flood duration*: The longer duration of time that floodwaters are in contact with building components the greater the potential for damage. Floodwaters may linger because of the low relief of the area, but the degree varies.

- *Velocity*: Flowing water exerts force on the structural members of a building, increasing the likelihood of significant damage.
- *Elevation*: The lowest possible point where floodwaters may enter a structure is the most significant factor contributing to its vulnerability to damage due to flooding.
- *Construction type*: Certain types of construction are more resistant to the effects of floodwaters than others. Masonry buildings, constructed of brick or concrete blocks, are typically the most resistant to flood damages significant damage.

Figure 7-3 Lancaster County Flood Map

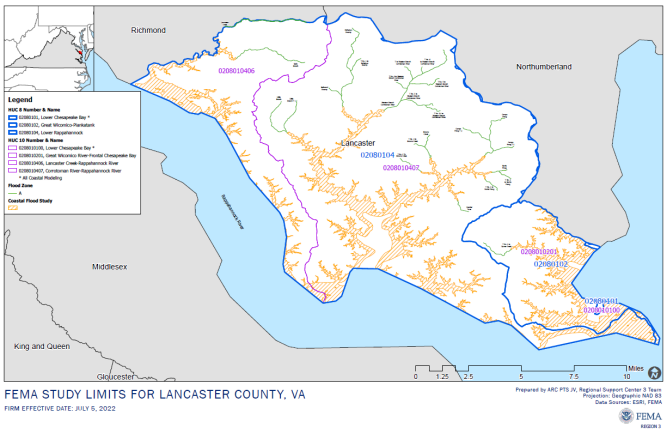


Figure 7-4 Northumberland County Flood Map

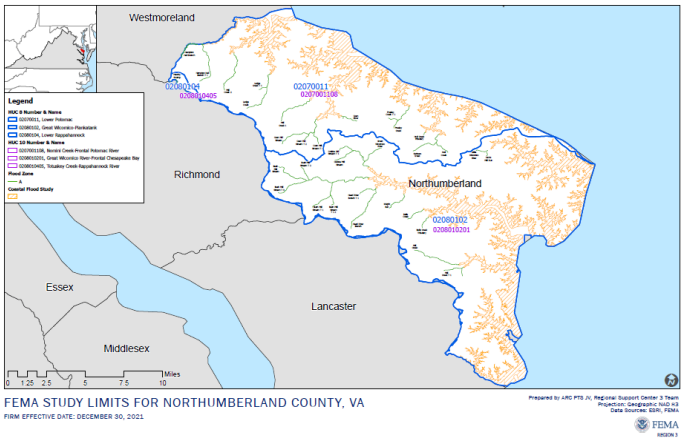


Figure 7-5 Richmond County Flood Map

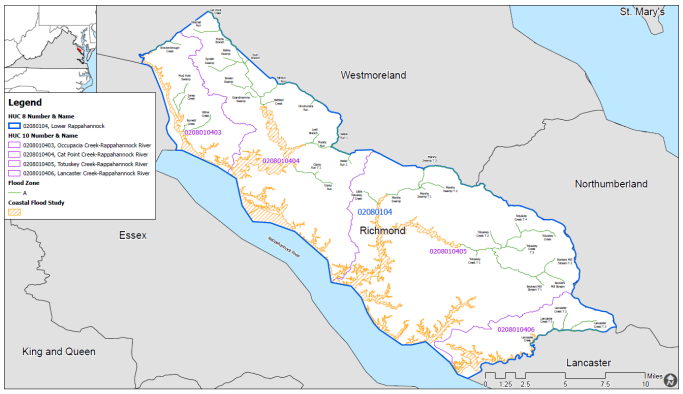


Figure 7-6 Westmoreland County Flood Map

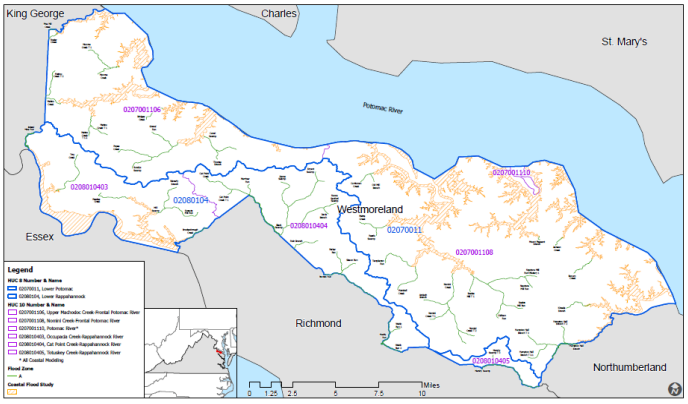
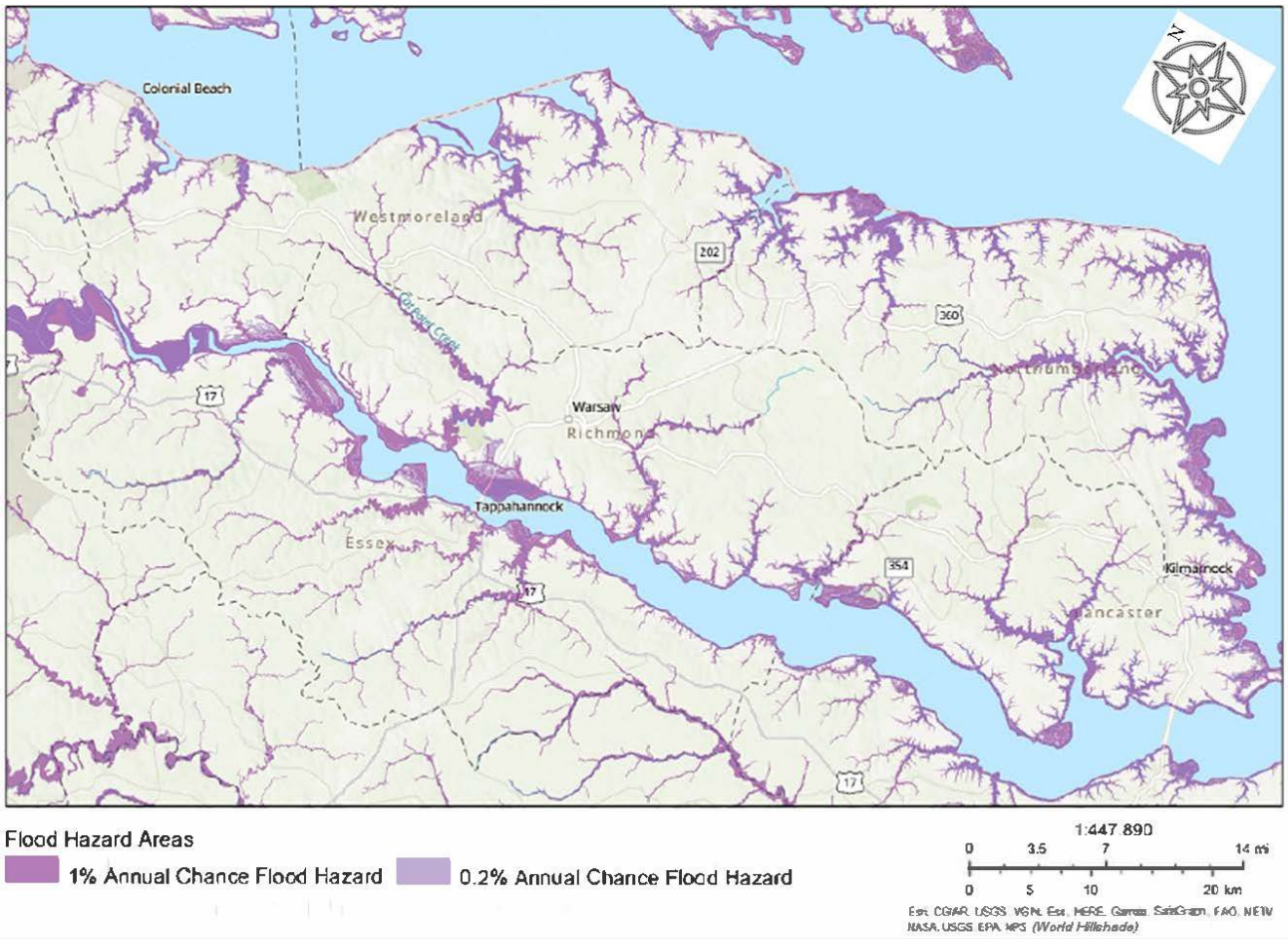


Figure 7-7 Flood Zones in the Northern Neck Region

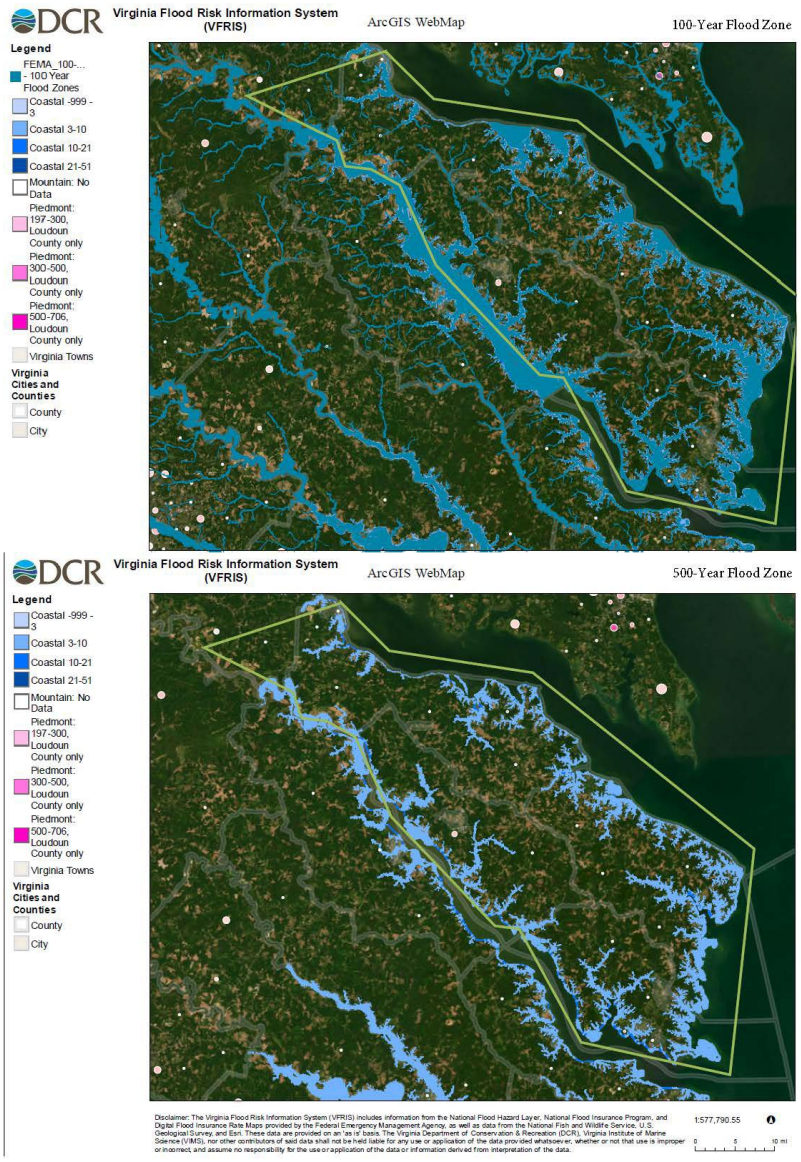


Source: USGS ArcGIS Flood Hazard Areas Layer

FEMA's HAZUS Tool and FEMA ArcGIS layers were utilized to assist in flood modeling and data collection. The flood data was run at Level 1. A Level 1 analysis run based primarily on data within the HAZUS software, such as census reports, regional building footprints, and property value calculations. Figures 7-3: Flood Zones in the Northern Neck Region, 7-4: 100-year and 500-year Flood Risk in the Northern Neck Region and Table 7-8: Threat Exposure in the Flood Zone for the Northern Neck Region in this section will demonstrate the flood zone's estimated losses and total exposure.

Flood hazard areas identified on a Flood Insurance Rate Map (FIRM) are identified as a Special Flood Hazard Area (SFHA). SFHAs are defined as the area that will be inundated by the flood event having a 1-percent chance of being equaled or exceeded in any given year. The 1-percent annual chance flood is also referred to as the base flood or 100-year flood, and the 0.2-percent-annual-chance is referred to as a 500-year flood.

Figure 7-8: 100-year and 500-year Flood Risk in the Northern Neck Region

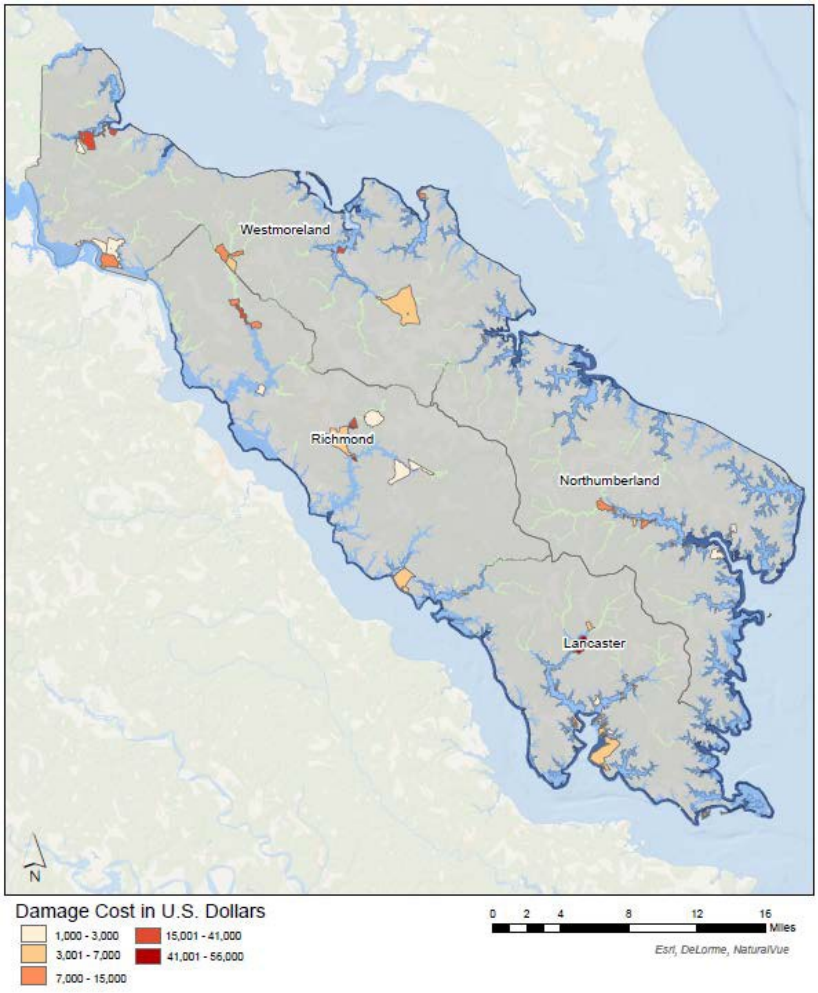


Source: Virginia Department of Conservation Flood Risk Information System

Table 7-9: Threat Exposure in the Flood Zone for the Northern Neck Region

County	Jurisdictions	100 Year Exposure	500 Year Exposure
Lancaster	County Total	$131,000,000	$176,000,000
Northumberland	County Total	$98,800,000	$113,000,000
Richmond	County Total	$16,000,000	$21,000,000
Westmoreland	County Total	$101,000,000	$115,000,000
Total	**Northern Neck Region**	**$346,800,000**	**$425,000,000**

Figure 7-9: Estimated Damage Cost in Flood Zones



Source: HAZUS

7.3.6 FEMA National Flood Insurance Program Participation

The National Flood Insurance Program (NFIP) is a federal program that enables property owners in participating communities to purchase insurance for flood losses. For a community to participate in the NFIP, they must adopt FEMA's flood risk maps, the flood Insurance Study, and floodplain management regulations that reduce future flood damages.

Flood insurance is designed to provide an alternative to disaster assistance to reduce the escalating costs of repairing damages to buildings and their contents caused by floods. Nationally, flood damage is reduced by nearly $1 billion annually through community implementation of sound floodplain management requirements and property owners purchasing flood insurance. Additionally, buildings constructed in compliance with NFIP building standards suffer approximately 80% less damage annually than those which predate floodplain management regulations or are not built within compliance.

In addition to providing flood insurance and reducing flood damages through floodplain management regulations, the NFIP identifies and maps the nation's floodplains. Mapping flood hazards creates broad-

based awareness of these hazards and provides the data needed for floodplain management programs and to actuarially rate new construction for flood insurance.

Floodplain management regulations are the cornerstone of NFIP participation. Communities participating in the NFIP must adopt and enforce floodplain management regulations. These regulations apply to all types of floodplain development and ensure that development activities will not cause an increase in future flood damage. Buildings are required to be elevated at or above the Base Flood Elevation, which is the predicted level of the one-percent flood.

Communities participating in the NFIP must adopt and enforce the minimum federal NFIP floodplain management regulations. These regulations apply to all types of floodplain development and ensure that development activities will not cause an increase in future flood damage. Buildings are required to be reasonably safe from flooding, which usually requires the finished floor elevation at or above the site's Base Flood Elevation (BFE). The BFE is determined based on modeling and mapping detailed in the community's Flood Insurance Study (FIS).

The FIS and its corresponding Flood Insurance Rate Maps (FIRMs) provide information on flood risk areas per NFIP standards. FIRMs identify areas with a one-percent annual chance of flooding and those with a 0.2%-annual chance of flooding. When new structures are built or existing structures are improved at more than 50 percent of their market value, they must adhere to floodplain management regulations. If the structure is financed through a federally insured loan, there is a mandatory flood insurance purchase requirement. Many mortgage lenders in high-hazard areas now require flood insurance even for structures outside the regulated floodplain. Ensuring high-risk structures are one method the NFIP uses to offset the escalating costs of flood disasters.

The Towns of Irvington, Kilmarnock, White Stone, and Colonial Beach, as well as the unincorporated parts of Lancaster, Northumberland, Richmond, and Westmoreland Counties, participate in the NFIP but do not participate in the Community Rating System. In addition, the Town of Montross in Westmoreland County and the Town of Warsaw in Richmond County do not participate in the NFIP. NFIP participation and each county and town's current effective map dates are listed in Table 7-10. The Reg-Emer Date is the date the community first joined the NFIP. All jurisdictions listed below participate in the "Regular" Program.

Table 7-10: Northern Neck Regional Jurisdictions NFIP Participation Dates

County	Jurisdiction	Initial FHBM Identified	Initial FIRM Identified	Current Effective Map Date	Reg-Emer Date
Lancaster	Irvington, Town of	10/18/1974	08/04/1987	07/06/2022	08/04/1987
	Kilmarnock, Town of	N/A	09/17/2010	07/05/2022	09/17/2010
	Unincorporated County	01/24/1975	03/04/1988	07/05/2022	03/04/1988
	White Stone, Town of	08/30/1974	09/24/1984	11/17/2020	09/24/1984
Northumberland	Unincorporated County	12/13/1974	07/04/1987	12/30/2021	07/04/1989
Richmond	Unincorporated County	04/11/1975	03/16/1989	07/26/2022	03/16/1989
Westmoreland	Colonial Beach, Town of	08/09/1974	09/18/1974	05/17/2022	09/18/1987
	Unincorporated County	07/18/1975	09/18/1987	05/17/2022	09/18/1987

Source: FEMA. NFIP – Data & Analytics: https://nfipservices.floodsmart.gov/reports-flood-insurance-data

Table 7-11 shows the total policies in force in the Northern Neck Region, 1,942 policies, and their associated insurance value and premiums. Table 7-12 summarizes the NFIP policy and claim statistics for the counties and towns within the Northern Neck Region Planning District Commission.

Reported losses include all flooding events. It should be emphasized that these numbers include only those losses to structures insured through the NFIP and losses in which claims were sought and received, except for those labeled as Closed Without Payment (CWOP). It is likely that there are additional instances of flood losses in the counties and towns that were uninsured, denied claims payment, or not reported.

Table 7-11: NFIP Policies in Force in the Northern Neck Region

County	Jurisdiction	Policies In-Force	Insurance In-Force Whole $	Written Premium In-Force
Lancaster	Irvington, Town of	6	$1,762,600	$7,746
	Kilmarnock, Town of	1	$350,000	$519
	Unincorporated County	521	$151,332,500	$406,797
	White Stone, Town of	2	$700,000	$1,101
Northumberland	Unincorporated County	638	$199,970,000	$463,266
Richmond	Unincorporated County	64	$278,714	$62,721
Westmoreland	Colonial Beach, Town of	191	$52,827,400	$137,484
	Unincorporated County	256	$80,438,000	$258,536
Total	**Northern Neck Region**	**1679**	**$487,659,214**	**$1,338,260**

Table 7-12: Repetitive and Severe Repetitive Loss Properties in the Northern Neck Region

Jurisdiction	RLP	RLP NFIP Insured	RLP Not NFIP Insured	RLP SDF	Severe RLP	SRLP NFIP Insured	SRLP Not NFIP Insured	SRLP SDF	Residential	Commercial	Institutional	Unknown Use
Lancaster	68	27	40	1	3	0	2	1	64	0	0	7
Northumberland	72	31	34	7	9	2	1	6	79	1	0	1
Richmond	10	7	3	0	1	1	0	0	10	0	0	0
Westmoreland	40	19	21	0	2	2	0	0	36	0	0	7
Northern Neck Region	**190**	**84**	**98**	**8**	**15**	**5**	**3**	**7**	**189**	**1**	**0**	**15**

Table 7-13: NFIP Claims as of September 2022

County	Jurisdiction	Total Losses	Closed Losses	Open Losses	CWOP Losses	Total Payments
Lancaster	Irvington, Town of	14	12	0	2	$268,192
	Kilmarnock, Town of	1	1	0	0	$12,259
	Unincorporated County	367	287	1	79	$5,462,158
	White Stone, Town of	11	5	0	6	$63,849
Northumberland	Unincorporated County	381	279	0	102	$6,788,171
Richmond	Unincorporated County	53	50	0	3	$1,274,479
Westmoreland	Colonial Beach, Town of	87	73	0	14	$3,622,592
	Unincorporated County	140	97	0	43	$2,817,324
Total	**Northern Neck Region**	**1,054**	**804**	**1**	**249**	**$20,309,024**

Source: FEMA NFIP Provided by FEMA September 202227.3.6.1 FEMA Repetitive Loss and Severe Repetitive Loss Properties

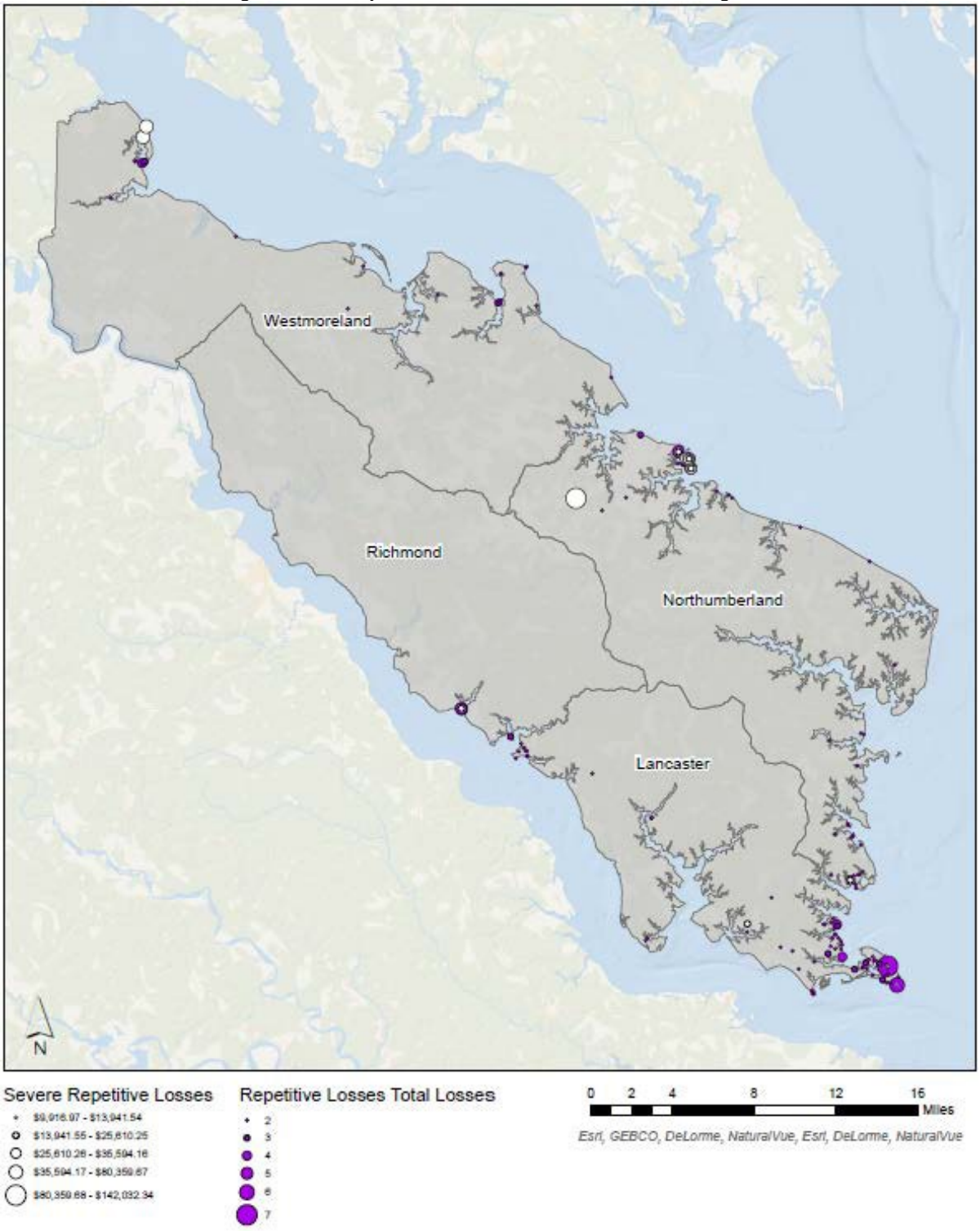
The NFIP defines Repetitive Loss as two or more claims of at least $1000 over a ten-year rolling period. This is the data that appears in this plan. The Hazard Mitigation Assistance program defines Repetitive Loss as having incurred flood-related damage on two occasions, in which the cost of the repair, on the average, equaled or exceeded 25 percent of the market value of the structure at the time of each such flood event; and, at the time of the second incidence of flood-related damage, the contract for flood insurance contains increased cost of compliance coverage.

Identifying RL and SRL properties is an important element in conducting a local flood risk assessment. The inherent characteristics of properties with multiple flood losses strongly suggest that they are at a high risk of future flood losses. RL and SRL properties are also important to the NFIP since structures that flood frequently put a strain on NFIP funds. A primary goal of FEMA is to reduce the number of structures that meet these criteria, whether through elevation, acquisition, relocation, or a flood control project that lessens the potential for future losses. Since FEMA's database tracks RL and SRL properties on a rolling ten-year basis, the number of properties fluctuates based on flooding events.

Using the redacted data provided by FEMA, the Northern Neck Region has 190 (one hundred and ninety) repetitive loss properties and 15 severe repetitive loss properties. The current RL and SRL list may not represent all properties that have been previously affected or could be affected by future flooding.

Figure 7-6 below shows the general location of RL and SRL properties within the Northern Neck Region.

Figure 7-10: Repetitive Loss in the Northern Neck Region



Source: HAZUS, ArcGIS, and FEMA Repetitive Loss Report

7.3.6.1 Floodplain Management

Statutes of the Commonwealth of Virginia provide cities and counties with land use authority. Floodwater control is empowered through §15.2-2223 and §15.2-2280 of the Code of the Commonwealth of Virginia. Each Northern Neck Regional jurisdiction with land use authority has adopted a local floodplain ordinance as a requirement of participation in the NFIP.

7.3.7 Wildfire Risk

Wildfires can have disastrous consequences causing damage to residences, commercial buildings, timber, agricultural areas, and natural resources. Economic consequences include the cost of suppression, reduced property values, lost sales and business revenues, reduced tourism, and increased water treatment costs. Resources threatened include communities, homes, gas transmission lines, electrical facilities and lines, timber, watershed and recreation areas, and wildlife. In addition, wildfires may create additional environmental concerns after they are extinguished, such as increased erosion and water quality concerns in stormwater runoff.

Timber loss and environmental damage frequently result from wildfires. Wildfire poses a significant threat to nearby buildings and populations. Forest damage from thunderstorms may block interior access roads and fire breaks, pull down overhead power lines, or damage pavement and underground utilities, thereby creating heavy fire load and making suppression and response more difficult. While the risk is apparent with many second homes located in wooded areas, wildfire size remains small even with limited volunteer fire departments. The lack of drought during the past two decades has greatly helped reduce wildfire occurrence and limit size that would exceed local resources. Table 7-13 presents loss data provided by the National Risk Assessment (NRI) tool.

Table 7-14: Estimated Annualized Loss from Wildfires

Wildfires	Chance of yearly Occurrence per NRI	Expected Annual Property Loss Values	Expected Annual Total Loss Values	Estimated Injuries	Estimated Deaths
Lancaster	0.03%	$1,901	$2,030	0	0
Northumberland	0.03%	$15,601	$16,456	0	0
Richmond	0.03%	$926	$1,036	0	0
Westmoreland	0.03%	$4,707	$4,760	0	0

7.3.7.1 Vulnerabilities

The Northern Neck Region has a significant means of fuel and conditions that could feed wildfires. In addition, the area is limited by low numbers of first responders, distance, and water access, all of which contribute to the possibility of wildfires growing and decreasing the chances of controlling the fire quickly. In the summer seasons, precipitation is often scarce, and coastal vegetation, farmland, debris, and woodland are dry with decreases in the water supply that depend on rainwater to replenish the reservoirs. Both the coastal areas with vegetation and open farm/wooded areas in all jurisdictions in the region are at risk for wildfires. This risk is increased during a drought and places all populations and wildlife at risk. That risk of injury or death is increased for civilians with limited mobility.

The probability of wildfires in the future is relatively unpredictable; still, if information is studied, such as that provided by the National Park Service publication *"Wildfire Causes and Evaluations" March 8, 2022*, then it

can be assessed that through the increase in human carelessness, the increase in severe weather events (high winds and lightning), and in some cases poorly maintained or hard to maintain areas of high debris. Agencies such as the Virginia Department of Forestry, DEQ, and the National Weather Service gather statistics, monitor conditions, and issue watches, warnings, and burn bans.

The priority hazard ranking process for the 2023 hazard risk assessment determined wildfires to be a "moderate" hazard in the Northern Neck Region. Data utilized for the ranking included Virginia Department of Forestry records and the NRI. The risks to the community in the event of a large fire incident are significant. The occurrence of a large-scale event is infrequent. Therefore, the frequency of wildfires reported to the VDOF encourages mitigation actions based on numbers. It is to be considered that most of the events reported in this plan are small events that did not exceed 10 acres nor exceed the local resources.

Wildfire ranks moderate for having a warning time of fewer than 24 hours before an event. Table 7-14 outlines the hazard rankings related to wildfires.

Table 7-15: CPRI Wildfire Hazard Priority

Probability	Magnitude	Warning Time	Duration	Total Score	Threat
1.8	0.3	0.6	0.1	2.8	Moderate

7.3.7.1 Effects of Climate Change and Wildfires

Wildfire events of significant size are infrequent in the Northern Neck Region however, the risk is elevated as noted in the CPRI scoring. The risks of wildfires to the Northern Neck Region lies in the amount of potential fuel and limited resources. According to NOAA' Wildfire Climate Connection "Research shows that changes in climate create warmer, drier conditions, leading to longer and more active fire seasons. Increases in temperatures and the thirst of the atmosphere due to human--caused climate change to have increased aridity of forest fuels during the fire season."

7.3.8 Winter Storm Risks in the Northern Neck Region

Based on the NCEI historical records of winter storm activity in the Northern Neck Region, it is estimated that the region will experience two significant winter weather events per year. This includes blizzards, heavy snow, ice storms, and winter storms. While this data includes weaknesses discussed previously, it is reasonable to conclude that severe winter weather events will likely continue to occur regularly in the region and should be properly mitigated.

Table 7-15 illustrates the annualized damages for winter storm events in the Northern Neck Region. Data from the NCEI database and NRI community reports were utilized to create an annualized estimate of the risks associated with winter weather events in the Northern Neck Region. There are no reported injuries or deaths reported in the NCEI database. It must be considered that in winter storms, there are motor vehicle accidents that occur when citizens attempt to travel on unsafe roads, and these injuries and property damages may not be reported as part of the event losses and casualties.

Table 7-16: Estimated Annual Loss Values from Winter Storm Events

Winter Storms	Annualized Events	Annualized Property Damages	Annualized Crop Damages	Annualized Total Damages	Deaths	Injuries
Lancaster	2	$312	$1	$2030	0	0
Northumberland	2	$327	$3	$5,386	0	0
Richmond	2	$188	$3	$4,247	0	0
Westmoreland	2	$542	$0	$11,982	0	0

7.3.8.1 Vulnerabilities

All critical facilities in the Northern Neck Region are considered vulnerable to the effects of severe winter storms due to the potential disruption of services and transportation systems and possible structural failure due to heavy snow loads. The level of vulnerability of a building depends on the age of the building (and the building codes in effect at the time of construction), construction type, and the structure's condition. In addition, FEMA Risk Management has published a Snow Load Safety Guide[1]. The guide states:

Most buildings are not at risk of snow-induced failure. Attempting to remove snow from a roof is more hazardous than beneficial, posing a risk to both personnel and the roofing structure. However, more than building design conditions, snow accumulation can result in more than a temporary loss of electrical power and inaccessible roads. Buildings may be vulnerable to structural failure and possible collapse if basic preventative steps are not taken in advance of a snow event. Knowledge of the building roof framing system and proper preparation before a snow event is instrumental in reducing risk to the structure.

According to the FEMA Snow Load Safety Guide, it is certain that certain roof types and materials are more susceptible to snow-induced collapse. Buildings vulnerable to increased snow accumulation and unbalanced loads include:

- Gable/multi-span gable roof
- Mono-slope roof
- Flat or low-slope roof with or without roof drains
- Stepped roof
- Saw-tooth roof

Even small ice accumulations can cause a significant hazard, especially on power lines and trees. An ice storm occurs when freezing rain falls and freezes immediately upon impact. Communications and power can be disrupted for days, and even small ice accumulations may cause extreme hazards to motorists and pedestrians. Extended power outages from ice storms would require residents to look for supplemental heat sources; improper use of these sources could result in house fires. Injuries could result from slipping on ice if residents, especially the elderly, were to leave their homes.

The priority hazard ranking process for the 2023 hazard risk assessment determined winter storms to be a "moderate" hazard in Northern Neck Region. Winter storm-related events within the region are likely, with two significant events expected annually. Winter storms in the Northern Neck Region cause more

[1] FEMA Risk Management Series: Snow Load Safety Guide. FEMA P-957 January 2013.
https://www.fema.gov/sites/default/files/documents/fema957_snowload_guide.pdf

problems with impacts on transportation networks and power outages. This leads to school, government, and business closings.

Table 7-17: CPRI Winter Storm Hazard Priority

Probability	Magnitude	Warning Time	Duration	Total Score	Threat
1.8	0.6	0.15	0.20	2.75	Moderate

7.3.8.1 Effects of Climate Change and Winter Storms

It appears as a contradiction that warming temperatures contributing to so many hazard events may also contribute to severe winter weather. However, a warmer planet is evaporating more water into the atmosphere. That additional moisture means increasing precipitation in the form of heavy snowfall if the temperatures are favorable. Winter storms do not frequently affect the region however, during significant events there are considerable factors that jurisdictions address in mitigation action planning. For example, a tropical storm occurring in August presents flooding and wind potential, however, a similar storm in January when temperatures fall below freezing adds additional risks such as citizens without heating sources and hazardous roadways.

7.3.9 Hurricane/Tropical Storm Risks in the Northern Neck Region

Hurricanes and tropical storms are events that can greatly impact large areas. Based on the NCEI historical records of hurricane activity in the Northern Neck Region, it is estimated that the area will experience one hurricane or tropical storm every three years. Virginia's hurricane season is June 1 through November 30, but the most intensive hurricanes usually occur during August and September.

Table 7-16 shows the annualized damages for hurricanes/tropical storms in the Northern Neck Region. The NCEI Storm Events data were annualized by dividing the total number of hurricane events by the length of the record. The annualized values should only be used to estimate what can be expected annually. Using historical records, individual counties can expect to experience one hurricane or tropical storm every three years. The region can expect to experience hurricanes and tropical storms at a similar frequency. Table 7-17 notes the expected annualized loss values from hurricanes and tropical storms with data provided by the NCEI database and NRI reports.

7-18: Expected Annualized Loss Values from Hurricanes/Tropical Storms

Hurricane/ Tropical Storm	Annualized Events	Annualized Property Damages	Annualized Agriculture Value	Annualized Total Damages	Deaths	Injuries
Lancaster	0.3	$275,695	$33,527	$323,758	0	0
Northumberland	0.3	$297,265	$135,223	$448,002	0	0
Richmond	0.3	$12,825	$69,144	$93,864	0	0
Westmoreland	0.3	$39,033	$35,849	$74,882	0	0

7.3.9.1 Vulnerabilities

Historically hurricanes have affected the Northern Neck region the worst in flood zones. However, in recent years hurricanes have brought tornadoes and severe wind damages that are of increasing severity. All populations in all jurisdictions of the region are at risk. Specialized attention is focused on citizens with access and functional needs, mobility issues, and institutional facilities. Coastal flood zones are frequently ordered to evacuate to reduce loss of life. Lancaster and Northumberland have more coastal property and therefore face immediate effects the worst however, Westmoreland has a unique situation of the Nomini Cliffs where they have the concern of precipitation contributing to landslides. All jurisdictions have to face the effects of these storms considering the size of region and the unique location in the Chesapeake Bay.

The priority hazard ranking process for the 2023 hazard risk assessment ranked hurricane/tropical storms as a significant hazard risk. Hurricane events within the region are somewhat likely with less than one event annually. Secondary effects from influenced fronts or remnants pose an increasing risk. Tropical cyclone events have a "high" range of impacts in annualized property damages, and the potential exposure for hurricane events is "high" with more than $1 million in potential damages. Hurricane is ranked low for having a warning time of at least two days before an event. Table 7-18 outlines the hazard ranking for each of the hazard priority criteria related to hurricane events.

Table 7-19: CPRI Hurricane/Tropical Storm Hazard Priority

Probability	Magnitude	Warning Time	Duration	Total Score	Threat
1.35	0.9	0.15	0.10	2.5	Moderate

7.3.9.1 Effects of Climate Change and Hurricane/Tropical Storms

In June of 2022 NOAA released A Force of Nature: Hurricanes in a Changing Climate in brief stating, "Due to global warming, global climate models predict hurricanes will likely cause more intense rainfall and have an increased coastal flood risk due to higher storm surge caused by rising seas. Additionally, the global frequency of storms may decrease or remain unchanged, but hurricanes that form are more likely to become intense. The incidence systems that impact the region at hurricane strength are minimal. Mitigation actions and planning remain at the forefront due to the risk factors and coastal location of the communities.

7.3.10 Coastal Erosion Risks in the Northern Neck Region

Some of the assets most vulnerable to coastal erosion in the Northern Neck Region are infrastructures such as bridges and roads, personal property, public and private beaches, and the natural habitats of shorebirds and other wildlife. Severe storms such as hurricanes and nor'easters that impact the Northern Neck Region can exacerbate the coastal erosion due to the higher wave action and storm surge. Severe storms can reduce the size of beaches and destroy substantial dunes in a single event.

Shoreline protection installations, such as bulkheads and seawalls, can positively and negatively affect the surrounding area. For example, eroding sediment banks that once provided sand for beaches, spits, and offshore bars no longer have a supply of natural sand input. In addition, these now-protected shoreline segments will remain as hard points or headland features while adjacent unprotected properties will continue to erode, sometimes at an accelerated rate.

By the year 2040, it is estimated the 492 buildings in the Northern Neck Regional communities will be lost to coastal erosion and sea level rise, according to the report "Future Sea Level and Recurrent Flooding Risk for Coastal Virginia" published in 2021 by the Commonwealth Center for Coastal Recurrent Flooding Resiliency. Table 7-19 demonstrates the effects that coastal erosion and rising sea levels may have on the Northern Neck Region in the future.

Table 7-20: The Potential Effects of Coastal Erosion on Assets in the Northern Neck Region

Asset	2040	2060	2080
Buildings	492	846	1425
Miles of roadway	6	24	45
Land area in square miles	22	29	37
Number of parcels	10,322	11,052	11,887

Source: "Future Sea Level and Recurrent Flooding Risk for Coastal Virginia" 2021 CCRFR

7.3.10.1 Vulnerabilities

The priority hazard ranking process for the 2023 hazard risk assessment determined coastal erosion to be a moderate hazard in the Northern Neck Region. Coastal erosion events can have a wide range of impacts; however, no recorded property damages were available to quantify that prior impact. Coastal erosion is a top priority in all 4 counties, and all are seeking means to reinforce coastal and waterway banks with means such as living shorelines. Erosion is a risk primarily to land but ultimately to population as the land disappears it decreases size and destabilizes the area. The more erosion that occurs the higher the flood risk will become. Damages have been ranked "significant" because damages are reported as caused by hurricanes, tropical cyclones, nor'easters, and other severe weather events. Table 7-20 outlines the hazard rankings for each hazard priority criterion related to coastal erosion. With ongoing climate change, sea level rise, and coastal erosion research, it is highly likely that the coastal erosion ranking will grow to 'significant' in the following plan update hazard risk assessment.

Table 7-21: CPRI Coastal Erosion Hazard Priority

Probability	Magnitude	Warning Time	Duration	Total Score	Threat
1.8	0.3	0.15	0.1	2.35	Moderate

7.3.10.1 Effects of Climate Change and Coastal Erosion

Coastal Erosion concerns are present in some portion of every County in the Northern Neck Region. Westmoreland has cliffs that are prone to collapse, and beaches and wetlands are frequently suffering damage and loss from storms that cause significant erosion events, such as Hurricane Sandy in 2012. NOAA's Climate Resilience Toolkit for Coastal Erosion teaches "as global sea level rises, the action of waves at higher elevations increases the likelihood for extensive coastal erosion." Communities in the region are working to integrate better ordinances, limit development in the SFHA, create more green spaces, and increase shoreline protection measures such as living shorelines and water runoff diversion techniques.

7.3.11 Pluvial Flooding Risks in the Northern Neck Region

Development, climate change, and aging stormwater infrastructure increase flash floods and surface water runoff risks. Surface flooding can lead to catastrophic damage. The unique landscape and location of the Northern Neck Regional communities creates an increased risk to the entirety of the region. Data contained in this plan show increasing severe weather events, rainfall, and flash flooding throughout the region, resulting in an increased risk of casualties, property damage, and assets.

Pluvial flooding is only recently being tracked as a separate damage classification and therefore there is little data to show monetary damage estimates or casualties. Multiple instances demonstrated in Section 6 provide evidence of the hazards of pluvial flooding to the Northern Neck Region.

The risk for occurrence is one event every two years. Although this is most likely higher with all events not being reported and the increasing number/severity of severe weather hazards.

7.3.11.1 Vulnerabilities

Pluvial flooding is a newly assessed hazard to the 2023 HMP. Events of this nature are more recently being brought to the forefront and noted for the damages caused. The priority concern across all jurisdictions participating are areas of poor stormwater drainage. The proximity to the coast with poor drainage and a storm that may drop an unexpected amount of precipitation in a short amount of time, may leave towns such as Colonial Beach and Kilmarnock with too much water and nowhere for it to go. This can result in flash flooding invading homes, roadways, and businesses. It can also cause dams to overtop and/or fail.

Table 7-22: CPRI Pluvial Flooding Hazard Priority

Probability	Magnitude	Warning Time	Duration	Total Score	Threat
1.35	0.3	0.15	0.2	2.0	Moderate

7.3.12 Landslide Risks in the Northern Neck Region

Landslides are not a common event in the region. There has been one landslide event recorded in the NCEI, and the NRI does not record any since 1996. There is concern among some working group members and localities that portions of inland river areas contain risk for landslide events, and the Nomini cliffs near Westmoreland State Park have a history of and future risks for collapse secondary to coastal erosion and storm damage. The NRI notes landslide as a “Relatively Moderate or Low” risk with an Index Score of 19.64 in Lancaster, 15.92 in Northumberland, 17.78 in Richmond, and 15.74 in Westmoreland.

Table 7-23: Estimated Annualized Loss from Landslide in the Northern Neck Region

Landslide	Chance of yearly Occurrence per NRI	Expected Annual Property Loss Values	Expected Annual Total Loss Values	Estimated Injuries	Estimated Deaths
Lancaster	0	$1,104	$32,334	0	0
Northumberland	0	$1,175	$40,084	0	0
Richmond	0	$1,826	$48,868	0	0
Westmoreland	1	$1,112	$33,899	0	0

7.3.12.1 Vulnerabilities

Landslide risk in the Northern Neck is relatively low in most jurisdictions. It is a concern in areas with slopes in the higher elevation areas of Westmoreland. Specifically, the areas in the State Park surrounding Nomini Cliffs where a collapse has occurred before. Although the HMWG does not see landslide as a significant risk for the majority of the region, it was felt that with the history and the NRI Index Scores that it should be placed in the hazard assessment for mitigation considerations.

Table 7-24: CPRI Landslide Hazard Priority

Probability	Magnitude	Warning Time	Duration	Total Score	Threat
0.9	0.3	0.6	0.1	1.9	Low

7.3.12.1 Effects of Climate Change and Landslides

Landslides are uncommon in the Northern Neck Region. However, the geography presents potential for events. Climate change data provided by NOAA shows that rainfall amounts are expected to increase in frequency and intensity. Concerns within these events include increased sediment movement in waterways and increasing erosion. All the factors contribute to the concern for landslide potential in the Northern Neck Region and the first step in the process of awareness and mitigation planning for landslides is to recognize the hazard in the Northern Neck Regional HMP 2022 update.

7.3.13 Drought Risks in the Northern Neck Region

Table 7-24 shows the annualized damages for drought events in the Northern Neck Region. Data for the droughts in the Northern Neck Region was drawn from multiple sources, including the NCEI, NRI Tool, USDA National Agricultural Statistics Service, and FEMA ArcGIS Mapping tool US Drought Intensity Layer. The events noted in Section 6 are major events with declaration-level damages and often occur over a prolonged period. The region often is affected by shorter droughts, periods of extreme heat, or shortages of water that go unreported to major agencies as they are dealt with internally in the community. Droughts are not a common occurrence (five major events since 1996) in the Northern Neck Region, as noted in Table 7-23. When there is a drought of noteworthiness, the losses are substantial in monetary measures as well as the survival of the agricultural community. The Annualized Events are from the major events listed in Section 6 occurring between 1996-2022. It should be considered that the NRI reports 91 drought events in Lancaster and Northumberland, and 122 events in Richmond between 2000-2017.

Table 7-25: Estimated Annualized Loss from Drought in the Northern Neck Region

Drought	Annualized Events	Annualized Property Damages	Annualized Agricultural Loss Values	Annualized Total Damages	Deaths	Injuries
Lancaster	0.2	$0	$215,814	$215,814	0	0
Northumberland	0.2	$0	$130,003	$130,003	0	0
Richmond	0.2	$0	$123,194	$123194	0	0
Westmoreland	0.2	$0	$339,126	$339,126	0	0

7.3.13.1 Vulnerabilities

A significant drought event brings economic, social, and environmental impacts to the entire region. One of the most significant economic effects of a drought is the agricultural impact, which includes the undernourishment of livestock and crop damage. Droughts severely impact farm income and can increase the cost of potable water if water supplies must be augmented. Even with the region being surrounded by water it does not decrease the risks of drought to citizens or land. Populations with limited access to move about are at the highest risk as they cannot leave their home for cooler areas when needed and ,ay not be able to access safe drinking water. All jurisdictions in the Northern Neck Region are at a potentially even risk for effects from drought. Agriculture and Livestock farmers would/could suffer the worst losses without enough water to care for their crops and animals.

High summer temperatures can exacerbate the severity of a drought. When soils are wet, a significant portion of the sun's energy goes toward the evaporation of the ground moisture. Yet, when drought conditions eliminate soil moisture, the sun's energy heats the ground surface, and temperatures can soar, further drying the soil. The impact of excessive heat is most prevalent in urban areas, where urban heat-island effects prevent inner-city buildings from releasing heat built up during daylight hours. The secondary impacts of excessive heat severely strain the electrical power system.

Droughts also create conditions that enable the occurrence of other natural hazard events, such as wildfires and wind erosion. The likelihood of pluvial and flash flooding increases if a period of severe drought is followed by extreme precipitation. Low-flow conditions also decrease the quantity and pressure of water available to fight fires, while dry conditions increase the likelihood that fires will occur.

The priority hazard ranking process for the 2023 hazard risk assessment determined drought to be a moderate hazard in the Northern Neck Region. The warning time for drought allows for preparations; however, it is rarely possible to forecast the length of time that drought will last; therefore, the warning time is somewhat complicated. The significant loss to agriculture ranks drought as a significant hazard. Frequency ranking can depend on what level (D0-D4) the community records and how damages are recorded. The NRI guidance recommends a higher frequency rating than cumulative statistics gathered from other sources. Table 7-25 outlines the hazard ranking for each of the hazard priority criteria related to drought.

Table 7-26: CPRI Drought Hazard Priority

Probability	Magnitude	Warning Time	Duration	Total Score	Threat
0.9	0.3	0.15	0.1	1.45	Moderate

7.3.13.1 Effects of Climate Change and Drought

USGS states that "Climate change exacerbates droughts by making them more frequent, longer, and more severe." In this update of the Northern Neck HMP, drought remained on the lower end of the hazard risk list but the threat remains moderate. Drought is directly affected by precipitation amounts, specifically less precipitation contributes to worsening drought conditions. Communities are encouraging mitigation actions through education and awareness, and actions such as debris clearing and encouraging the removal of items such as dilapidated buildings that could be a fuel source.

7.3.14 Heatwave Risks in the Northern Neck Region

Much of the risk from heatwaves is to the population, primarily vulnerable populations, and persons with functional access needs. The climate and coastal location of the region contribute to high humidity that will increase the effects of high heat indexes, further raising the hazards associated with heat waves.

Table 7-27: Estimated Annualized Losses from Heatwave in the Northern Neck Region

Heat Wave	# Of Events NCEI	Estimated Population Equivalence	Expected Annual Total Loss Values	Estimated Injuries	Estimated Deaths
Lancaster	3	$23,339	$23,346	0	0
Northumberland	3	$25,263	$25,290	0	0
Richmond	3	$18,960	$18,983	0	0
Westmoreland	3	$30,740	$30,740	0	0

When calculated with available data, heat waves are ranked as a "Low" priority. Likewise, probability, magnitude, and warning time favor the region with the lowest scores. Duration is an unknown factor as most events that present as heatwaves may present in short periods of time and then end, or they may "pulse" with a period of heat that decreases and then returns.

7.3.14.1 Vulnerabilities

Vulnerable populations across the region include wildlife, animals, access and functional needs persons, elderly, and children that can not move themselves into cooler areas. All jurisdictions in the Northern Neck Region have populations that would suffer during a heatwave. The higher humidity of the outlying water front areas would contribute to worsening the heat index with increased humidity. Heatwave and drought often accompany each other in the summer and subsequently increase the chance of wildfire.

Table 7-28: CPRI Heatwave Hazard Priority

Probability	Magnitude	Warning Time	Duration	Total Score	Threat
0.9	0.3	0.15	0.3	1.65	Low

7.3.14.1 Effects of Climate Change and Heatwave

The Center for Climate and Energy Solutions states that heatwaves are increasing in frequency. Additional statements note, "If greenhouse gas emissions are not significantly curtailed, daily high and low temperatures will increase by at least five degrees F in most areas by mid-century, rising to 10 degrees F by late century. The National Climate Assessment estimates 20-30 more days over 90 degrees F in most areas by mid-century. Facing these estimates, the jurisdictions in the region have included heatwave as a new hazard of consideration to ensure inclusion in mitigation actions and planning.

7.3.15 Earthquake

Although earthquakes may occur infrequently, they can have devastating impacts that affect entire communities and regions. An earthquake's destructiveness depends on several factors, including the magnitude of the tremor, the direction of the fault, distance from the epicenter, regional geology, and the design characteristics of buildings and infrastructure. Moderate and even very large earthquakes are inevitable; consequently, buildings in these regions are seldom designed to deal with an earthquake threat; therefore, they are extremely vulnerable.

Earthquake intensity is generally greater on soft soils than on solid rock. Areas in the Northern Neck Region that contain alluvial soils are more at risk of destabilization occurring in the event of an earthquake. Other effects of a strong earthquake include landslides, fissuring, slumping at the ground surface, and even tsunamis. When the epicenter of a large earthquake is located offshore, the seabed may be displaced sufficiently to cause a tsunami. Tsunami waves can travel across the ocean at very high speeds, depending on the location and source of the seismic event.

Table 7-29: Estimated Annualized Loss from Earthquake in the Northern Neck Region

Earthquakes	Chance of yearly Occurrence per NRI	Expected Annual Property Loss Values	Expected Annual Total Loss Values	Estimated Injuries	Estimated Deaths
Lancaster	0.03%	$14,133	$14,518	0	0
Northumberland	0.03%	$11,897	$12.270	0	0
Richmond	0.03%	$11,669	$12,180	0	0
Westmoreland	0.03%	$25,337	$26,163	0	0

7.3.15.1 Vulnerabilities

If an earthquake were to effect the Northern Neck the vulnerable population would depend on the jurisdiction that it affected and how high the Richter reading is. The damages to buildings and infrastructure would be a primary concern. Earthquakes can trigger many other incidents such as tsunamis (not a hazard risk in the NN Region), dam failure, erosion, structural damages, and debris instability. The additional incidents that earthquakes can trigger increase the potential level of vulnerabilities.

The priority hazard ranking process for the 2023 hazard risk assessment determined earthquakes to be a limited hazard in the Northern Neck Region. As described in the profile above, earthquakes are unlikely events with no epicenters recorded in the Northern Neck Region. There are no recorded property damages secondary to earthquakes. The potential exposure for an earthquake event is “significant,” with greater than $1 million in potential damages. Due to the infrequency of events in this area, infrastructure could sustain considerable damage in a medium-strength earthquake. Earthquake is ranked high for having a warning time less than 24 hours before the event. Table 7-29 outlines the hazard rankings for each of the hazard priority criteria related to earthquakes.

Table 7-30: CPRI Earthquake Hazard Priority

Probability	Magnitude	Warning Time	Duration	Total Score	Threat
0.45	0.3	0.9	0.1	1.75	Low

7.3.14.1 Effects of Climate Change and Earthquake

In the Northern Neck, earthquakes are a minimal risk with almost no historical data to show any major risk. However, Virginia has many fault lines that are inactive but that doesn't negate the responsibility of the jurisdictions to consider mitigation actions for earthquakes. The James River follows the Central Virginia Seismic Zone between Charlottesville and Richmond. To date earthquake occurrences are not predictable and an earthquake can occur at any time without warning.

7.4 Northern Neck Region's Critical Facilities

A critical facility is defined as a facility in the public or private sector that provides essential products and services to the public; is necessary to preserve the welfare and quality of life in the community; or fulfills important public safety, emergency response, and/or disaster recovery functions. Examples include public safety facilities (police, fire, and emergency medical services), cell towers, courthouses, medical facilities, utilities, transportation networks, and schools.

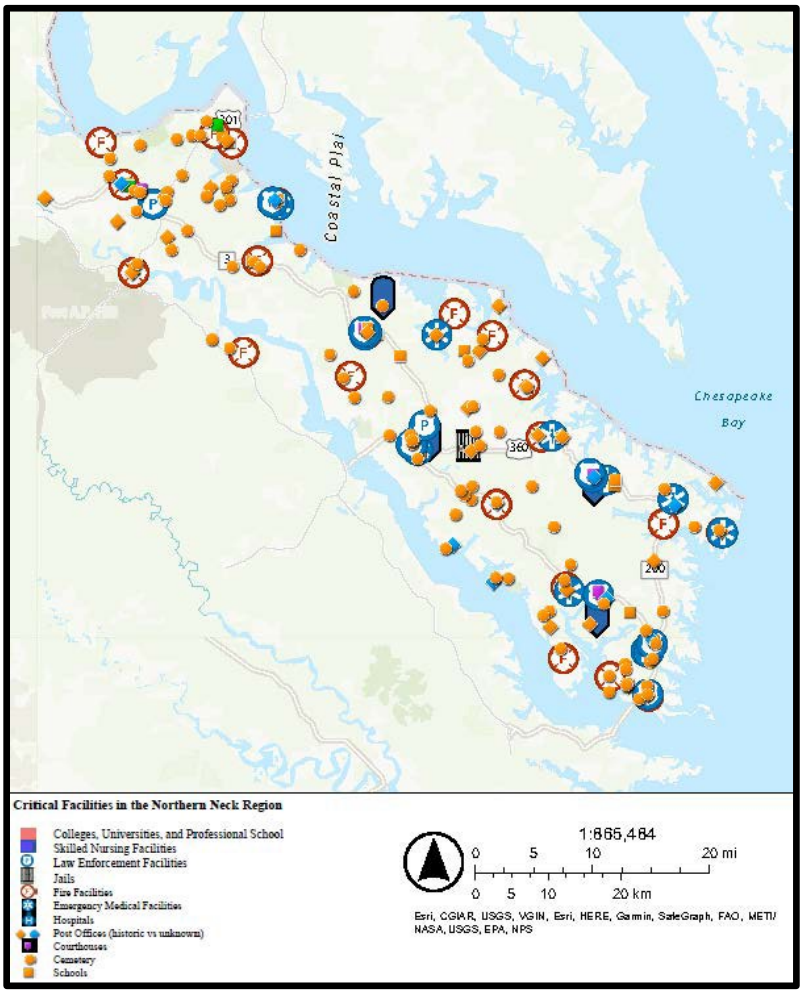
Table 7-30 summarizes the number of critical facilities by type in the Northern Neck Region, and Figure 7-7 maps their relative location.

7-31: Critical Facilities in the Northern Neck Region

Facility Type	Number of Facilities
Emergency Medical Services (EMS)	9
Emergency Operations Centers (EOC)	4
Fire	17
Government	4
Medical	20
Police	14
School	20
Utility	15
Total	**124**

Source: U.S. Geological Survey data pulled 10/03/2022

Figure 7-11: Critical Facilities in the Northern Neck Region



Source: https://www.arcgis.com/apps/mapviewer/index.html?layers=f36207114ae94f3987e5f0423170f2a5

7.5 Northern Neck Region's Future Development Trends

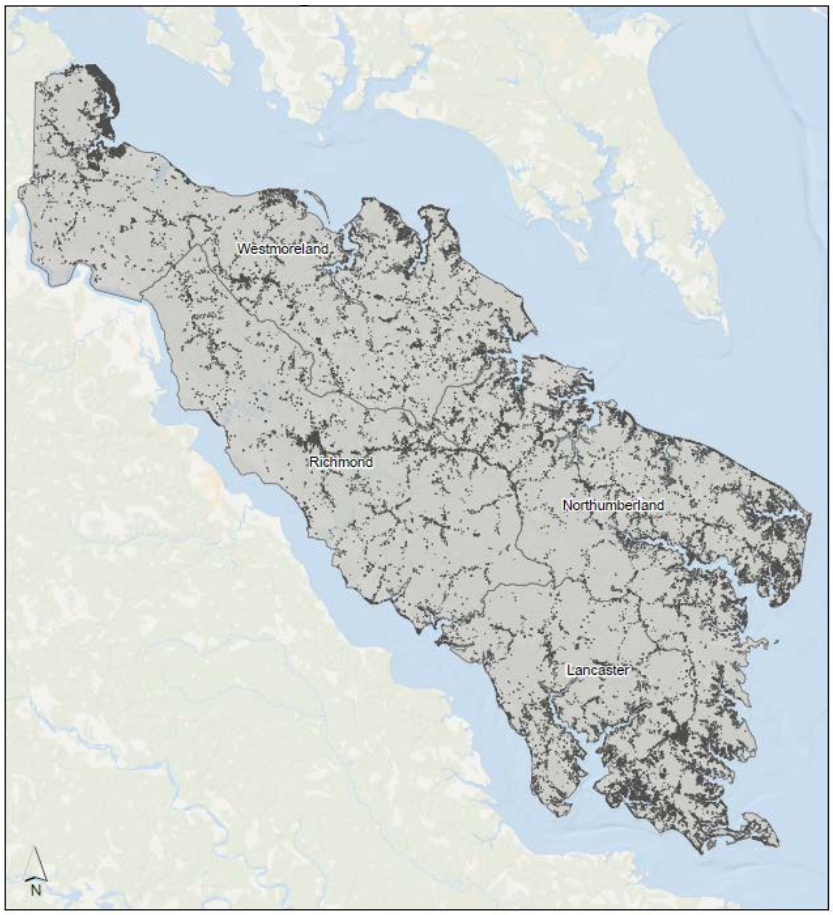
Administered by the Commonwealth of Virginia, the Bay Act Program comprehensively addresses the effects of land use planning and development on water quality. The Bay Act recognizes that local governments are primarily responsible for land use decisions. It expands their authority to manage water quality and establish a direct relationship between water quality protection and local land use decision-making. All participating communities have regulations limiting or prohibiting development in the SFHA, and all have plans to continue enforcing and expanding on those regulations.

7.6 Summary of Risk Assessment

A variety of natural hazards have the potential to impact the Northern Neck Region. In addition to the potential for injury or loss of life and damage to property and crops, a hazardous event can disrupt utilities, communication, and transportation, impacting the well-being of people and communities. Since so many residents are second homeowners along the region's coastal shores, a full understanding of hazard potential, severity, and recovery after an event is a unique challenge to the area. It is important to point out that data limitations for some hazards prevented a complete analysis of past occurrences and potential

future losses. Figure 7-8 presents the current building footprint for the communities in the Northern Neck Region.

Figure 7-12: Building Footprint in the Northern Neck Region



Source: HAZUS

The purpose of the hazard ranking is to categorize and prioritize all potential hazards for the Northern Neck Region based on risk. Combined with the asset inventory and quantitative vulnerability assessment, the summary hazard classifications allow for the prioritization of those high-hazard risks for mitigation purposes and, more specifically, the identification of hazard mitigation opportunities for the Northern Neck Region to consider as part of their proposed mitigation strategy. Hazards were ranked utilizing the CPRI process identified in Section 7.2. This index was then used to rank the hazards to give the community some sense of how the hazards ranked in comparison to the others. Table 7-31 provides a summary of the hazards, categories, scoring, and ultimate ranking.

Table 7-32: Calculated Priority Ranking Index Summary

Hazard	Probability	Magnitude and/or Severity	Warning Time	Duration	CPRI Score	Hazard Ranking
Tornado	1.35	0.9	0.6	0.1	2.95	1
Severe Weather (High winds, hail, lightning)	1.8	0.6	0.3	0.2	2.9	2
Coastal Flooding	1.8	0.6	0.15	0.3	2.85	3
Riverine Flooding	1.8	0.6	0.15	0.2	2.75	4
Wildfire	1.8	0.3	0.6	0.1	2.8	5
Winter Storm	1.8	0.6	0.15	0.20	2.75	6
Hurricane/Tropical Storm	1.35	0.9	0.15	0.3	2.7	7
Coastal Erosion	1.8	0.3	0.15	0.2	2.45	8
Pluvial Flooding	1.35	0.3	0.15	0.2	2	9
Landslide	0.9	0.3	0.6	0.1	1.9	10
Drought	0.9	0.3	0.15	0.40	1.75	11
Heatwave	0.9	0.3	0.15	0.3	1.75	12
Earthquake	0.45	0.3	0.6	0.1	1.45	13

As described in the sections on hazard-specific estimated loss, there have been 352 storm events since the 1950 report across the Northern Neck Region, as recorded in the NOAA NCEI Storm Events database. This total accounts for any duplication in instances where the same storm event was reported in multiple counties in the NNPDC. Total damages, which are also reported on a county level, are not duplicative since each county only reports its local damages. Similarly, deaths and injuries are not duplicative. The NOAA NCEI Storm Events Database data were annualized using the total years of record for each hazard category. When the NCEI did not offer sufficient data, the NRI, VDOF, and HAZUS were utilized to provide the best available data. Table 7-32 summarizes the region's estimated annualized events and damages. This information is additionally presented by county in Table 7-33.

Table 7-33: Northern Neck Regional Annualized Hazard Events, Damages, Deaths, and Injuries

Hazard	Events	Property Damages	Crop Damage	Total Damage	Deaths	Injuries
Tornado	0.4	$172,204	$1,162	$173,367	0	0.2
Severe Weather	3.2	$360,170	$105	$360,275	0	0
Coastal Flooding	0.5	$1,317,887	$0	$1,317,887	0	0
Riverine Flooding	0.5	$56,339	$16,922	$73,261	0	0
Wildfire	141	$5,161	$65,930	$71,091	0	0
Winter Storm	4.2	$1,926	$0	$1,926	0	0
Hurricane/Tropical Storm	0.3	$117,741	$175,147	$292,888	0	0
Coastal Erosion	**	TBD	TBD	TBD	0	0
Pluvial Flooding	0.5-2	TBD	TBD	TBD	0	0
Landslide	0.1	TBD	TBD	$1.5 M	0	0
Drought	0.1	$0	$943,399	$943,399	0	0

Hazard	Events	Property Damages	Crop Damage	Total Damage	Deaths	Injuries
Heat Wave	0.7	$0	$0	$30K	0	0
Earthquake	0.03	$64,000	$0	$64,000	0	0

Table 7-34: Annualized Hazard Events by County in the Northern Neck Region

Hazard	Lancaster	Northumberland	Richmond	Westmoreland	NNPDC
Tornado	1	1	1	1	1
Severe Weather	7	7	7	7	7
Coastal Flooding	4.4	4.4	4.4	4.4	4.4
Riverine Flooding	0.3	0.3	0.7	0.5	0.45
Wildfire	6.7	4.5	1.3	3.8	4.1
Winter Storm	2	2	2	2	2
Hurricane/Tropical Storm	0.3	0.3	0.3	0.3	0.3
Coastal Erosion	n/a	n/a	n/a	n/a	n/a
Pluvial Flooding	4	4	1	7	4
Landslide	0	0	0	1	0.25
Drought	0.2	0.2	0.2	0.2	0.2
Heatwave	0.12	0.12	0.12	0.12	0.12
Earthquake	0.03	0.03	0.03	0.03	0.03

Section 8
Capability Assessment

Contents of this Section

8.1 Overview and Purpose of Capability Assessment

Although not specifically required by Disaster Mitigation Act of 2000 or 44 CFR 201.6, a capability assessment adds context to a mitigation plan by providing an inventory of a Jurisdiction's programs and policies, and an analysis of its capacity to carry them out. These are essential for developing mitigation strategies and actions.

The capability assessment is a review of the Northern Neck Region's resources to identify, review, and analyze what the jurisdictions are currently doing to reduce losses, and to identify the framework that is in place for the implementation of new mitigation activities. This section of the Plan also facilitates efforts with the Virginia Department of Emergency Management (VDEM) and with federal agencies and resources. In addition, this assessment will be useful in gauging whether the current local organizational structures and inter-jurisdictional or county coordination mechanisms for hazard mitigation could be improved, and how.

This local capability is extremely important because the municipal officials know their own landscape best. Additionally, many of the most critical and effective hazard mitigation strategies and programs, including floodplain management, enforcement of building codes, and land-use planning, require a strong local role to achieve effective implementation.

State statutes require each Jurisdiction to assign an individual to be responsible for its local emergency management duties. The jurisdiction's emergency management coordinator is responsible for coordinating emergency response and recovery operations with local, regional, state, and federal officials.

8.2 Methodology

This capability assessment results from research, interviews, and surveys. Relevant documents were reviewed related to hazard mitigation, including the Commonwealth of Virginia Hazard Mitigation Plan (2018), as well as state and federal sources related to funding, planning, and regulatory capability. For the participating jurisdictional capability assessments, a series of in-depth individual interviews provided key insights and information. These interviews were conducted during the month of September 2022. Table 8-1 notes the interview attendees.

Table 8-1: Jurisdiction Capabilities Assessment Interviews

Agency/Locality	Representatives
Northern Neck Planning District Commission	John Bateman
Lancaster County	Matthew Smith – Chief of Emergency Services Bill Farrell – Director of Planning and Land Use Jim Canter – Building Official Olivia Hall – Environmental Codes Compliance Officer
Town of Irvington	Julie Harris – Mayor Laurel Taylor – Town Clerk Justin Nelson – Zoning Administrator
Town of Kilmarnock	Marshall Sebra – Planning and Zoning Director
Town of White Stone	Patrick Frere – Town Manager
Northumberland County	Wes Packett – Director of Emergency Services Lutrell Tadlock – County Administrator Phillip Marston – Zoning Administrator
Richmond County	Hope Mothershead – Code Compliance Officer Mitch Paulette – Chief, Department of Emergency Services
Town of Warsaw	Melissa Coates – Director of Planning and Community Development Joseph Queensberry – Town Manager
Westmoreland County	Bill Cease – Director of Emergency Management and Technology Darrin Lee – Assistant Planning Director Beth McDowell – Director of Planning and Community Development
Town of Colonial Beach	J.C. Lariviere – Grants Writer India Adams-Jacobs – Town Manager Kaylynn DeBernard – Town Planner Darla Odom – Zoning Administrator Brooke Shamblin – Community Development Officer Matt Smith – GIS
Town of Montross	Patricia Lewis – Town Manager

To complete the capability assessment, interviews were held with each jurisdiction individually. In preparation for the interviews, packets were sent to each locality to review with previous capabilities and mitigation goals and actions from the 2017 plan. The interviews addressed the following subjects:

- Staff, personnel, and technical capability
- Knowledge of Federal Emergency Management Agency (FEMA) mitigation programs
- Current/ongoing mitigation efforts

- Intra- and inter-governmental coordination
- Land use and regulation
- Floodplain management
- Building code inspection
- Capital improvement
- Land conservation programs

8.3 Federal and State Regulations, Plans, and Funding Sources

The responsibility to the public for effective hazard mitigation rests with the elected officials, which in the Northern Neck Region are the County Boards of Supervisors and the Town Councils. They enact the codes, regulations, and ordinances through the authorities granted them by the Commonwealth of Virginia under the Dillon Rule. Emergency management is directed through local emergency management or emergency services offices. County and town leaders direct local hazard mitigation efforts and work cooperatively as appropriate on regional initiatives through the Northern Neck Region Local Emergency Planning Committee or with specific counties to provide FEMA-VDEM Hazard Mitigation Assistance (HMA) grant project administration and management. Many related regional plans and programs are administered by the Northern Neck PDC that directly inform and benefit its local governments related to natural resources, economic development, climate change and sea level rise.

This plan fulfills the standard local mitigation planning requirements (44 CFR §201.4) of the Disaster Mitigation Act of 2000 (Public Law 106-390, signed into law October 10, 2000). The Disaster Mitigation Act 2000 mends the 1988 Robert T. Stafford Disaster Relief and Emergency Assistance Act, and reinforces the importance of mitigation planning, emphasizing planning for disasters before they occur. Section 322 of the Act specifically addresses mitigation planning at state and local levels. New requirements are identified that allow Hazard Mitigation Grant Program (HMGP) funds to be used for mitigation activities and projects for states and localities with Hazard Mitigation Plans approved by November 1, 2004.

Federal regulations such as the *Code of Federal Regulations, Title 44, Chapter 1, Part 201 (44 CFR Part 201), the Sandy Recovery Improvement Act (SRIA) of 2013, the National Flood Insurance Act of 1968*, and the *Water Infrastructure Improvements for the Nation (WIIN) Act of 2016* outline regulations of compliance in proper hazard mitigation planning that opens the ability to apply for funding such as:

- Hazard Mitigation Grant Program
- Building Resilient Infrastructure and Communities
- Fire Management Assistance Grant Program
- Public Assistance Grant Program
- Rehabilitation of High Hazard Potential Dam Grant Program

8.4 Capability Assessment for the Northern Neck Region

The purpose of conducting the capability assessment is to assess methods that the Northern Neck Region's County and local governments, have available to implement successful mitigation programs. Through careful analysis, existing gaps, shortfalls, or weaknesses within existing governmental activities that could exacerbate a community's vulnerability were identified. The assessment also highlights the positive measures underway at the local level that will continue to be supported and enhanced through future mitigation efforts.

The Capability Assessment Matrix, found in Appendix D, serves as the foundation for designing an effective hazard mitigation strategy. It not only helps inform Plan goals to be both achievable but aspirational to

reduce regional exposure to natural hazards. The 2017 Capability Assessment Matrix did not contain the assessment for all participating communities. The towns of Irvington, Kilmarnock, Montross, White Stone, and Warsaw were added to the Capabilities Matrix and now encompasses all participating jurisdictions. Table 8-3 below, presents the complete capabilities review of all jurisdictions participating in the 2023 Northern Neck Regional Hazard Mitigation Plan.

The Northern Neck PDC acts in an advisory role in many of the capability categories contained in this assessment. Therefore, the Northern Neck PDC does not staff technical positions such as civil engineers and building officials. The Northern Neck PDC employs planners and hazard mitigation personnel that assist in advisory roles in planning, mitigation programs, floodplain, and stormwater management protocols, and they manage a range of community programs assisting citizens and jurisdictions with mitigation and planning efforts, such as the Septic Pump Out Assistance Program. Many regional plans and programs are administered by the Northern Neck PDC that directly inform and benefit its local governments related to natural resources, economic development, climate change and sea level rise.

Northern Neck Region's local governments do not have dedicated mitigation funding project sources to manage and administer HMP grant-funded projects, so the Northern Neck PDC supports the administrative aspects of those project by facilitating the Hazard Mitigation Assistance grants process to assist with elevations of structures in the flood zones, specifically those of Repetitive Loss/Severe Repetitive Loss (RLP/SRLP) status. The Northern Neck PDC's website offers a central location to publicize information about a variety of different hazard mitigation and planning efforts throughout the region.

8.5 Capability Assessment for Jurisdictions within the Northern Neck Region

This portion of the Plan assesses the current capacity of the communities of the Northern Neck Planning District to mitigate the effects of the natural hazards identified in Section 6 of the plan. This assessment includes a comprehensive examination of the following local government capabilities:

- *Administrative Capability* – describes the forms of government in the region, including the departments that may be involved in hazard mitigation.
- *Technical Capability* – addresses the technical expertise of local government staff.
- *Fiscal Capability* – examines budgets and currently used funding mechanisms.
- *Relevant Ordinances and Policies* – examines existing plans and policies (e.g., emergency operations plan, comprehensive plan).
- *Regulatory Authority* – describes how jurisdictions in the region use the four broad government powers (i.e., regulation, acquisition, taxation, and spending) to influence hazard mitigation activities.

The complete capabilities assessment is compiled in Table 8-2 below for all participating jurisdictions.

8.5.1 Relevant Ordinances and Policies

This section provides guidance pertinent to the ordinances and policies that have the potential to affect and/or promote mitigation within the jurisdictions. Understanding which ordinances and policies affect mitigation is a helpful component to mitigation activities. Many of the ordinances and policies that most directly affect development in relation to hazards reside at the municipal level. These include zoning, floodplain management, and building code enforcement.

- Comprehensive Plans – All ten jurisdictions maintained a locality Comprehensive Plan
  - Lancaster, Northumberland, Richmond, Westmoreland, the Town of Colonial Beach have infused a hazard mitigation element into their comprehensive plan.

- Richmond and Lancaster counties have updated their plans and are expecting to adopt prior to the completion of this plan (November 2022).
- The Towns of Irvington and Warsaw's plans are currently under revision.

- Enterprise Zones - Each of the jurisdictions have enterprise zones. Additionally, building priority areas of primary and secondary growth exist, with the design intent to better situate development in areas that are less susceptible to natural hazards. This will assist in decreasing damages and loss and increase the jurisdiction and regional resiliency capabilities. (Source: https://www.northernneck.us/enterprise-zones/).
  - New or expanding businesses located on an Enterprise Zone parcel may qualify for an Enterprise Zone incentive grant if the establishment or expansion of the business creates jobs or requires a real-property investment.
  - Established by the General Assembly in 1982, the Virginia Enterprise Zone Program is a partnership between the state and local governments to stimulate job creation and private investment within designated areas throughout Virginia. Currently, the Northern Neck region has over 11,000 acres designated as enterprise zones.
  - Enterprise Zones offer businesses a package of state and local incentives in the form of tax relief and grants, local regulatory flexibility, and local infrastructure development.
  - Regionally there is a monetary incentive for new and expanding businesses that create 25 new full-time jobs, invest $250,000, and have an average annual wage that is at least 125% of the area average.
  - Lancaster County offers additional incentives including grants (not to exceed $1,000) to businesses improving their property's façade, zero percent (0%) interest loans for micro-enterprise development and a tax credit for businesses rehabilitating property within the zone.
  - Richmond County offers additional incentives such as financial inducement for businesses creating at least 25 jobs, investing $250,000 or above on industrially zoned properties in the Zone, and paying employees an average annual wage of at least 115 percent of the area average. Furthermore, a ten-year decreasing property tax exemption of the increase in assessed value of certain rehabilitation of commercial or industrial properties, is offered.
  - The Town of Kilmarnock offers businesses exemptions from zoning permit fees, water and sewer connection fees, business, professional and occupational licenses, auto decal fees, and subdivision permit fees at the Kilmarnock Business and Technology Park.
  - The Town of Warsaw offers incentive grants (up to $1,000) to zone businesses making façade improvements and a three-year 50% tax credit (Town tax only) on the assessed value of a new building in the zone costing at least $100,000.

Figure 8-1: Enterprise Zone Map for the Northern Neck Region

Source: Northern Neck Planning District Commission https://www.northernneck.us/enterprise-zones/

- Floodplain Management Ordinances – All four counties maintain Floodplain Ordinances and comply with NFIP regulations by enforcing them.
  - The ten jurisdictions maintain ordinances that fulfill the principles of the Chesapeake Bay Preservation Area Designation and Management Regulations.
  - The Towns of Irvington, Kilmarnock, and Colonial Beach maintain their own floodplain ordinances
  - The Towns of White Stone, Warsaw, and Montross utilize their respective county's ordinance as applicable.

- Stormwater Management Plan – All four counties maintain Stormwater Management ordinances.
  - The Town of Warsaw maintains a Stormwater Management Plan
  - The Town of Colonial Beach applied for grant funding in November of 2021 to build a Stormwater Management Plan
  - The Towns of Irvington, Kilmarnock, White Stone, and Montross utilize their respective county's ordinance as applicable.
  - Stormwater management is regulated by the Department of Environmental Quality's Chesapeake Bay Preservation Program for all localities in addition to any local plans that may be adopted.

- Subdivision Regulations – All participating jurisdictions enforce a Subdivision Regulation except for the Town of Montross.
  - The Town of Montross utilizes their respective county's regulation.

- Emergency Operations Plan – all four counties maintain a current Emergency Operations Plan (EOP)
  - The Towns of Warsaw and Colonial Beach maintain individual EOPs
  - The Towns of Irvington, Kilmarnock, White Stone, and Montross utilize their respective county's EOP.

- Erosion and Sediment Control Ordinance – all four counties maintain ordinances to address erosion and sediment control.
  - The 10 jurisdictions maintain and/or comply ordinances that fulfill the principles of the Chesapeake Bay Preservation Area Designation and Management Regulations.
  - All six towns utilize their county's respective ordinance as applicable.

- Continuity of Operations Plan – COOP is not a requirement for hazard mitigation. It is a beneficial planning document that is recommended to be integrated for cross planning purposes.
  - Northumberland County has a completed COOP that is going through the final adoption process at the time of time update. It is expected to be active by November 2022.
  - The County of Richmond adopted a new COOP in 2021.
  - The Town of Irvington maintains a COOP plan.

8.5.2 Fiscal Capabilities

For the Fiscal Year 2023 (FY23), the budgets of the participating jurisdictions range from about $22 million (Richmond County) to $51.3 million (Lancaster County) and smaller budgets for towns. Revenues which support local budgets come from property taxes, State and local sales taxes, local service fees, and through restricted intergovernmental contributions (federal and state pass through dollars). Mitigation projects have been funded through FEMA's post-disaster Hazard Mitigation Grant Program (HMGP). The Commonwealth of Virginia historically and presently provides 20 percent of the required non-federal project match, leaving only a required 5 percent local match, typically using in-kind services or property owner resources.

FY23 budgets provided by local jurisdiction representatives and published jurisdiction budgets are shown in Table 8-2, Northumberland County has created a development impact fee structure to supplement county income. Capital Improvement Plans (CIPs) and intergovernmental agreements are used by three of the four Northern Neck Region's counties.

Table 8-2: Fiscal Budget Information

Jurisdiction	Total FY23 Budget	Public Safety FY23 Budget
Lancaster	$51.3 million	$7 million
Northumberland	$45.8 million	$5.6 million
Richmond	$37.2 million	$3.7 million
Westmoreland	$32.6 million	$8.6 million
NNPDC	$15.1 million	N/A

Jurisdiction	Total FY23 Budget	Public Safety FY23 Budget
Town of Colonial Beach	$8.8 million	$1.9 million
Town of Irvington	$425,000	$30,000
Town of Kilmarnock	$2.9 million	$685,722
Town of Montross	$316,541	$23,250
Town of Warsaw	$3.1 million	$791,559
Town of White Stone	$226,545	$51,370

N/A – not applicable. ***Source: FY23 Budgets for corresponding jurisdiction.***

8.5.3 Taxes

The power to levy taxes and special assessments is an important tool delegated to local governments by Virginia's law. The power of taxation extends beyond merely the collection of revenue and can have a profound impact on the pattern of development in the community. Communities have the power to set preferential tax rates for areas which are more suitable for development to discourage development in otherwise hazardous areas. Local units of government also have the authority to levy special assessments on property owners for all or part of the costs of acquiring, constructing, reconstructing, extending or otherwise building or improving flood protection works within a designated area. This can serve to increase the cost of building in such areas, thereby discouraging development. Localities in Virginia collect a 1% sales tax. In addition, all the counties in the Northern Neck PDC levy property taxes.

8.5.4 Spending

The fourth major power that has been delegated from the Virginia General Assembly to local governments is the power to make expenditures in the public interest. Hazard mitigation principles can be made a routine element of all spending decisions made by local governments, including during adoption of annual budgets and the Capital Improvement Plan (CIP) for protection of critical facilities.

A CIP is a schedule for provision of town or county services over a specified period. By tentatively committing itself to a timetable for the provision of capital to extend services, a community can control growth in areas where the provision of on-site sewage disposal and water supply are unusually expensive. In addition to forming a timetable for provision of services, a local community can regulate the extension of and access to services. Participating jurisdictions that engage a CIP are presented in Table 8-3.

8.5.5 Technical, Administrative, and Regulatory Capacity

This section provides a review of the administrative and technical resources within the individual jurisdictions and assists with identifying any gaps, needs, available staff, use of available outside contractors, or other arrangements such as mutual aid agreements. The following resources and further associated items are presented in the Capabilities Matrix in Table 8-3, below.

8.5.5.1 Technical

Mitigation is multi-disciplinary. For a successful mitigation program, it is necessary to have a broad range of people involved who can inform and contribute to holistic mitigation programs through diverse backgrounds and experience. The Northern Neck Region's local governments do not have dedicated mitigation funding project sources to manage and administer HMP grant-funded projects, so the Northern Neck PDC supports the administrative aspects of those projects. The Northern Neck PDC's website offers a central location to

publicize information about a variety of different hazard mitigation and planning efforts throughout the region. Emergency managers devote staff time and use existing web sites, social media and events like tornado awareness month and hurricane preparedness month as a platform for mitigation messaging. Strong preparedness and mitigation messages, techniques, and program links are provided on local websites to enable residents and businesses to create disaster preparedness plans and carry adequate flood insurance on at-risk properties and property contents.

- Hazard Mitigation Assignment – is Hazard Mitigation assigned to a specific department?
  - All four counties and the Town of Colonial Beach have done so.
  - The Towns of Irvington, Kilmarnock, White Stone, Warsaw, and Montross utilize their respective county's hazard mitigation efforts.
  - Hazard mitigation planning and actions is supported in all regions by the Northern Neck Planning District Commission.

- GIS Coordinator
  - All four counties and the Towns of Kilmarnock, Warsaw, and Colonial Beach employ GIS staff.
  - The Towns of Irvington, White Stone, and Montross utilize their respective county's GIS services or contract out as needed.

- Zoning Staff – All four counties report fulltime Zoning and Building Officials staffing.
  - All six towns report at least parttime Zoning staff.
  - All six towns report utilizing their respective county's Building Inspectors.

- Floodplain Management Staff – All participating jurisdictions report having a dedicated floodplain manager except the Town of Montross
  - The Town of Montross utilize their respective county's Floodplain Manager.

Overall, the participating jurisdictions have a well-rounded technical staffing capability. All jurisdictions report the need for higher staff volume. However, staffing and capability levels show improvement in the five years since the 2017 HMP plan update.

8.5.5.2 Administrative

The Northern Neck Region LEPC designates the following departments with specific responsibilities for hazard mitigation:

- Board of Supervisors, Town Councils and Local Government Administrators
  - The responsibility to the public for effective hazard mitigation rests with the elected officials, which in the Northern Neck Region are the different County Board of Supervisors and the Town Councils. They enact the codes, regulations, and ordinances through the authorities granted them by the Commonwealth of Virginia under the Dillon Rule.
  - The importance of this is high at this time with the increased unpredictable severe weather events, communities facing sea level rise and continued accelerating coastal erosion. The Region is taking steps to reverse the impact of the COVID-19 pandemic. The nation, State, and entire Northern Neck Region were immobilized during the shelter-in-place orders issued. Communities are facing the effects of economic losses, rising costs and supply chain issues.

- Land use - Regulatory powers granted by the state to local governments are the most basic way a local government can control the use of land within its jurisdiction. Through various land use regulatory powers, a local government can control the amount, timing, density, quality, and location of new development. All these characteristics of growth can determine the level of vulnerability of the community in the event of a natural hazard. Land use regulatory powers include the power to engage in planning, and to enact and enforce zoning ordinances, floodplain ordinances, and subdivision controls. Each local community possesses great power to prevent unsuitable development in hazard-prone areas.

- Emergency Management
  - County and town emergency management operations are focused in two areas. First responders, which remain largely dependent on volunteers support immediate response to incidents such as building, brush and woodland fires, medical emergencies, accidents, and hazardous materials spills.
  - Emergency managers are responsible for the mitigation, preparedness, response, and recovery operations in relative to natural and man-made disaster events. Specifically, County Administrators and Town Managers, in their roles as Coordinator of Emergency Services, have designated management responsibility for the floodplain management and emergency management programs, often including hazard mitigation program, and assigns program operations to appropriate departments or staff.

- Department of Health
  - The Virginia Department of Health enforces ordinances related to safe handling and the emergency distribution of water and food and are responsible for the prevention or reduction of spreading disease.
  - The Northern Neck Region is served by the Three Rivers Health District. Employees support the ten-county region of the Northern Neck and Middle Peninsula. An emergency planner and epidemiologist are on District staff. Staffing levels have seen many changes since Virginia declared a state of emergency for the COVID-19 pandemic in March of 2020.

- Building/Planning/Zoning
  - Planning, zoning, and site inspections are conducted by staff or departments which have responsibility for administering and enforcing existing building codes and zoning ordinances.
  - Planning and code compliance staff also ensure that all new construction, repair and building additions or improvements comply with state and county building codes, zoning, and land-use regulations.
  - Local compliance with the Chesapeake Bay Preservation Act, erosion and sediment control regulations and stormwater management starts with proposed development plan review by local planners with additional technical and field inspection support provided by the Northern Neck Regional Soil and Water Conservation District. In addition, these departments support project review and code enforcement for hazard mitigation such as elevation of flood prone residential buildings and ensure that FEMA Elevation Certificates and Floodproofing Certificates are properly completed for applicable projects.

- The County Building Official is licensed by the Commonwealth of Virginia and locally enforces the Virginia Uniform Statewide Building Code (VUSBC). This code includes implications for floodplain management. Local Planning or Community Development departments addresses land use planning and, in most cases, house the local floodplain management program enforcing the local floodplain management regulations.

- Law Enforcement
  - Each county has a Sheriff's Department which is primarily funded by the Commonwealth of Virginia Compensation Board. In most instances the county is providing additional budget funds to increase the coverage and abilities of their law enforcement agencies. Leaders of law enforcement agencies are included in hazard mitigation planning. All the jurisdictions in the regional planning area have enacted and enforce regulatory ordinances designed to promote the public health, safety, and general welfare of its citizenry.
  - The Towns of Kilmarnock, White Stone, Warsaw, and Colonial Beach maintain a local jurisdiction police department as well.
  - Sworn officers in all departments have the responsibility as essential personnel to respond in the face of a natural disaster.
  - Virginia's local governments have been granted broad regulatory powers in their jurisdictions. The statutes of the Commonwealth of Virginia bestow the general police power on local governments, allowing them to enact and enforce ordinances which define, prohibit, regulate, or abate acts, omissions, or conditions detrimental to the health, safety, and welfare of the people, and to define and abate nuisances (including public health nuisances). Since hazard mitigation can be included under the police power (as protection of public health, safety, and welfare), towns, cities, and counties may include requirements for hazard mitigation in local ordinances. Local governments also may use their ordinance-making power to abate "nuisances," which could include, by local definition, any activity or condition making people or property more vulnerable to any hazard.

- Public Safety (including EMS, fire department, and rescue squads)
  - Participating jurisdictions are facing this issue with the addition of paid staff employed by the local government. Emergency Medical Services (EMS) staff such as EMTs and Paramedics are hired to ensure ambulances can respond to 911 calls. The majority of fire service personnel remain volunteers with assistance from agencies such as VDEM which provides Regional HAZMAT Officers and teams that respond to assist as needed. The Virginia Department of Forestry staff aide response to brush, woodland, and wildfires.
  - Virginia has a statewide fire code. The code establishes statewide standards to safeguard life and property from the hazards of fire or explosion arising from the improper maintenance of life safety, and fire prevention and protection of materials, devices, systems, and structures. The Virginia State Fire Marshal's Office is charged with enforcement of the code statewide except in those localities that choose to enforce the code locally. Localities that choose to enforce the code locally must employ their own certified fire official.

- Public Works
  - Departments have a role in hazard resiliency through oversight and maintenance of local infrastructure, some critical, which varies amongst Northern Neck Regional jurisdictions. While the responsibilities and infrastructure are varied, critical infrastructure includes wastewater treatment facilities, a few local water treatment systems, and several new local drainage systems.
  - Primary and secondary road maintenance is largely the responsibility of the Virginia Department of Transportation which coordinates closely with local emergency managers during and immediately after disaster events and storms to address road closures and detours, debris management and messaging. The Town of Colonial Beach owns all its town roads except for Colonial Ave and Washington Ave. Other departments may have responsibilities for programs that could complement hazard mitigation activities. For instance, parks and recreation departments may be responsible for open space programs. If demolition/acquisition projects are undertaken, coordination to manage created open space may include the parks and recreation staff.

8.5.5.3 Regulatory

Following a state or federal emergency and disaster declaration, VDEM coordinates recovery efforts with local governments through the LEPC, local emergency managers, and VDEM Regional Support teams. The following items are utilized in jurisdictions to assist with Hazard Mitigation and Emergency Management planning. Local governments in Virginia, including those in the Northern Neck Region, have a wide range of tools available to them for implementing mitigation programs, policies, and actions. A hazard mitigation program can use any of the four broad types of government powers granted by the State of Virginia, which are (a) regulation, (b) acquisition, (c) taxation, and (d) spending. The scope of this local authority is subject to constraints. All of Virginia's political subdivisions must not act without proper delegation from the state. All power is vested in the State and can only be exercised by local governments to the extent it is delegated (in accordance with Dillon's Rule).

- Emergency Operations Plans
  - The Northern Neck PDC Emergency Operations Plan was last updated in 2011. Counties in the Northern Neck Region are required to establish and maintain an Emergency Operations Plan for their locality. EOPs are to be updated every 4 years. This requirement is mandated under the following:
    - The Code of Virginia Chapter 3.2 - *Ch. 3.2 of the Code of Virginia establishes the State's Department of Emergency Management and provides the legal authority for the development and maintenance of the Commonwealth's emergency management program. Additionally, it defines the emergency powers, authorities, and responsibilities of the Governor and State Coordinator and requires that state and local governments be prepared for a variety of natural and human-caused hazards by developing, maintaining, and ensuring their ability to implement an emergency operations plan (EOPs).*
  - All four counties in the region along with the Towns of Warsaw and Colonial Beach have an EOP. The remaining Towns of Irvington, Kilmarnock, White Stone, and Montross act under their respective county's EOP.

- Comprehensive Plans
  - A community's comprehensive plan provides the future vision for the community regarding growth and development. However, many of the plans include land use or environmental protection goals that could support future mitigation efforts. For example, limiting development in the floodplain (which is considered mitigation) may also help meet open space goals laid out in a comprehensive plan. Several comprehensive plans address mitigation, resiliency, and long-term community sustainability. These are new inclusions, and as communities continue to update their comprehensive plans it is anticipated that mitigation and resiliency issues will be more comprehensively addressed. Virginia comprehensive plans are usually updated on a five-year cycle.
  - For the most part, the region's comprehensive plans include strategies that address development in the floodplain or otherwise flood-prone areas. The comprehensive plans indicate that communities in the Northern Neck Region use zoning and subdivision regulations to retain the rural character of their areas while they preserve traditional livelihoods like agriculture, forestry, fishing, and aquaculture.
  - Lancaster County
    - Hazard mitigation concepts are found throughout the Lancaster County Comprehensive Plan.
    - The shoreline protection plan included in this document advocates for the use of vegetative methods as opposed to structural solutions such as rip- rap and groins on individual parcels. The plan also encourages a coordinated approach to shoreline protection suggesting that density credits and other innovative techniques could be used to encourage such actions. The Living Shorelines Initiative contributes to this cause.
    - The plan notes that a variety of growth tools may be appropriate for Lancaster County including performance standards, conservation easements, use valuation taxation, overlay zones, and open space provisions which prioritize flood control.
  - Town of Irvington
    - Irvington's comprehensive plan notes that it "is a community of choice for seasonal and weekend residents and extended renters". This lights a potential decrease in population growth and the plan notes that the town will need to grow and consider addition infrastructure to draw a fulltime population back to the town. In the opening remarks the town notes its dedication to preserving the natural environment and waterways and to encourage green space in the community.
    - Portions of Irvington present flooding issues while a majority of the town rises to 20-30 feet above sea level. The greatest concern mentioned is stormwater runoff in pluvial flooding events and coastal erosion issues along the shoreline. The town has only a few residences in the flood hazard zone.
    - There weren't many hazard mitigation actions noted in the comprehensive plan. It was stated during the jurisdiction interviews that the town is currently in the process of updating the comprehensive plan and will consider integrating an HMP element.

- Town of Kilmarnock
  - Kilmarnock presents with a unique situation as it is in north Northumberland and Lancaster counties and the surrounding waterways are numerous. This location places the town on the shorelines of the Chesapeake Bay as well as exposed to the Potomac and Rappahannock Rivers. Kilmarnock contains designated Resource Protection Areas (RPAs). "The RPAs shall remain largely undeveloped according to the regulations in the town's zoning ordinance and the policies set forth in this Comprehensive Plan. RPA's include tidal wetlands, non-tidal wetlands that are connected by surface flow and contiguous to tidal wetlands or water bodies with perennial flow, tidal shores, and a 100 ft vegetated buffer area that is located adjacent to and landward of water bodies with perennial flow as well as all the aforesaid components."
  - The goals include open hazard mitigation potential with protecting "the delicate balance and land use compatibility between existing/future land use development and the natural environment" and "Incorporate the preservation of natural environmental, historical, and cultural features of the community into planning and implementation of all public and private activities.
  - Kilmarnock estimates an above sea level ranging from 10-90 feet with several steep slope areas, the town's drainage moves into basins that eventually reach the Chesapeake Bay creating concern for runoff and pollution during high precipitation events.

- Town of White Stone
  - The Town of White Stone boasts significantly less coastal flood areas than other jurisdictions in the Northern Neck region. The town does suffer some significant flooding from pluvial type events. One of the primary goals in the Comprehensive Plan notes "Improve storm water drainage in Town in order to enhance public safety and to protect property values.", which they have made significant progress towards in working with VDOT to clear ditches and make roadway improvements throughout the troubled areas.
  - Despite having limited coastal properties in the town, their comprehensive plan indicates implemented zoning provisions that act to conserve "wooded buffer areas along stream banks and limit development adjacent to streams." White Stone has also adopted an "Erosion and Sediment Control Ordinance" under the guidance of Lancaster County, that is an element of the Chesapeake Bay Preservation Act.
  - The Comprehensive Plan does not currently contain a specific Hazard Mitigation section. The objectives and goal contain many mitigation activities that would address preservation, erosion, open space preservation, stormwater management and drainage, and green energy goals.

- Northumberland County
  - Northumberland County's plan includes a section on flood-prone areas and delineates numerous goals and strategies directed toward protection of life and property from floods. These strategies include public education, performance standards, enforcement of existing ordinances, and utility sitting criteria. The plan also highlights that the current county regulations require that any building constructed within the floodplain have a finished floor elevation two feet above the base flood elevation.

- Shoreline erosion remains a concern for Northumberland. The plan includes numerous strategies designed to protect shorelines. These include use of vegetation for shoreline protection and performance standards for structures that modify the shoreline. The plan also recognizes the need for coordinated or subdivision wide actions.

- Richmond County
  - Richmond County's Comprehensive Plan calls for accommodating future growth while maintaining the rural character of the county. The recommendations in the plan also recognize that growth cannot occur unchecked but should be guided away from environmentally sensitive areas such as floodplains. For instance, the plan calls for the use of cluster design techniques to allow for environmentally sensitive areas to remain undeveloped.
  - Shoreline erosion is featured in the Richmond County Comprehensive Plan. One recommendation calls for promoting the use of natural shoreline protection strategies. Vegetation and living protection measures were mentioned.
  - Recommendations include establishing setbacks in known erosion areas, the use of other natural features to protect the shoreline, enforcement of existing ordinances and facility sitting requirements.
  - The plan also recommends that the county develop programs to encourage maintenance of existing properties. Hazard mitigation principles could be incorporated into such a program.

- Town of Warsaw
  - Warsaw's plan opens with the following purpose and scope "The Warsaw Comprehensive Plan is the policy document around which the Town endeavors to set a path for its future. The focus of the Plan is to establish a policy framework for the specific issues of land use and water quality protection. As such, this document represents the Town of Warsaw's recognition of its role in the protection of state waters and the Chesapeake Bay and its tributaries. The Plan is intended to carry out the goals of the Chesapeake Bay Preservation Act and has been developed in accordance with the Chesapeake Bay Preservation Area Designation and Management Regulations."
  - Warsaw's comprehensive plan primarily focuses on environmental protection measures, land use, and water quality preservation. Noting inadequate stormwater management resources despite the 140 ft above sea level elevation, the community targets concern for flooding, erosion and sedimentation, and pollutants entering the waterways. One of the mitigation actions mentioned is to minimize vegetation disturbance and decreased impermeable surface area that results in stormwater runoff.

- Westmoreland County
  - Flood is a primary concern in Westmoreland the comprehensive plan suggests that appropriate development practices, land use controls and protection of vulnerable shoreline and drainage should be improved to minimize the effects of flooding. One of the goals to address flooding is to "follow proper design practices including community retention ponds and other measures to improve flood-insurance ratings for the county."

These recommendations were informed by the *Westmoreland County Shoreline Management Plan, 2013,* which was prepared for the county and the Virginia Coastal Zone Management Program by the Virginia Marine Institute of Marine Science, College of William and Mary.

- The comprehensive plan recommends a variety of studies to address shoreline erosion and storm water drainage. The future land use plan also includes a conservation designation that incorporates areas of the floodplain and calls for limited to no future development. The plan recommends that Westmoreland County pursue measures to facilitate entry into the Community Rating System.
- The County is willing to use easements to protect land. The plan was reaffirmed in 2022 and hazard mitigation, water quality, and coastal protection elements are incorporated. In addition, the plan addresses changing hazards in dam management.

- Town of Colonial Beach
  - The plan's opening statement shows its commitment to resiliency and preservation. They view the coastline, marshes, and waterways as an asset and a means to seek natural solutions to improve park and recreation facilities and create open community areas. The plan recognizes the mitigation action of protecting living shorelines with the preservation of the tidal marshes and vegetation.
  - One of the suggestions is that the "Town incorporate Low-Impact Development standards into the planning and permitting process."
  - Colonial Beach integrated the 2017 Northern Neck Regional HMP into their comprehensive plan, specifically, hazard identification and risk assessment, mitigation strategies, capabilities, plan implementation, and maintenance.
  - The Town will also use the Resilience Adaptation Feasibility Tool (RAFT) to help improve resilience to flooding and other coastal storm hazards while remaining economically and socially viable

- Town of Montross
  - The purpose and scope of the community's comprehensive plan states: "Land use, protection of natural resources, and transportation issues are the development categories that require the most informed decisions. This 2018 revision of the Town of Montross Comprehensive Plan aims to be a helpful analysis of these categories."
  - The plan cites Montross as a dry area above the wetlands and shorelines. Cited in the plan is how residential and commercial activities affect groundwater and stormwater runoff.
  - Agriculture is a high priority to Montross, and the priority is mitigating losses in disaster situations. "Agricultural uses are still active in some places throughout the Town and outskirts. Some parts of the Town remain forested, mostly within the ravines. In a sense, the region's most valuable natural resources are within the Chesapeake Bay and along its shorelines. The viability of those resources is fundamentally dependent upon the water quality of the Bay and its tributaries."

- Goals included in the plan include minimizing land disturbance and vegetation on slopes, restricting land disturbance at development sites on or near steep slopes, and development of greenways within the Town and surrounding areas.

8.5.6 The Chesapeake Bay Protection Regulations

The Chesapeake Bay Preservation Act (Bay Act) was enacted by the Virginia General Assembly in 1988 as a critical element of Virginia's non-point source management program. The Bay Act program is designed to improve water quality in the Chesapeake Bay and other waters of the State by requiring the use of effective land management and land use planning.

Virginia designed the Bay Act to enhance water quality with continued reasonable development. The Chesapeake Bay Act balances state and local economic interests and water quality improvement by creating a unique cooperative partnership between State and Tidewater local governments to reduce and prevent nonpoint source pollution. Local governments retain the primary responsibility for land use decisions, expanding local government authority to manage water quality, and establishing a more specific relationship between water quality protection and local land use decision-making.

The Chesapeake Bay Act Program is the only program in Virginia State government that deals comprehensively with the relationships between water quality, and land use planning and development. It is also the only program that assists local governments with land use planning needs to meet water quality goals: the development of land use regulations, ordinances, and comprehensive plans.

Virginia is a signatory to the Chesapeake Bay Agreement, a unique regional partnership aimed at restoration of the Chesapeake Bay. Communities in certain parts of the state are required to implement local land use controls to minimize runoff and other adverse impacts to the water quality of the Bay. Each Northern Neck PDC jurisdiction is part of the Tidewater area and therefore required to enforce Bay Act provisions locally. The program's agricultural non-point source pollution reduction efforts have been led by the Northern Neck Regional Soil and Water Conservation District. Prevention of sediment, nutrient and other pollution from land development is directed through erosion and sediment control and stormwater management ordinances.

Upcoming changes that will affect the Northern Neck Region as this plan is adopted include:

- **Code of Virginia Article 2.5. Chesapeake Bay Preservation Act. § 62.1-44.15:72. Board to develop criteria. (H.)**
- "Effective July 1, 2023, requirements promulgated under this article directly related to compliance with onsite sewage system pump-outs shall be managed and enforced by the Department of Health in Accomack, Essex, Gloucester, King and Queen, King William, *Lancaster*, Mathews, Middlesex, Northampton, *Northumberland*, *Richmond*, and *Westmoreland* Counties, and the incorporated towns within those counties."

1

Table 8-3: Capability Assessment

Programs and Capabilities	NNPDC	Lancaster County	Town of Irvington	Town of Kilmarnock	Town of White Stone	Northumberland County	Richmond County	Town of Warsaw	Westmoreland County	Town of Colonial Beach	Town of Montross
Comprehensive Plan		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
With Hazard Mitigation Element	Advisor	Y	N	N	N	Y	Y	N	Y	Y	N
Adoption		Nov. 2022****	Sept 2017****	April 2014	Oct. 2013	Nov. 2016	Nov. 2022	May 2013*	Dec. 2010	May 2017	Feb. 2018
With Coastal Protection Element		Y	N	N/A	N/A	Y	Y	N	Y	Y	N
Capital Improvement Plan	Advisor	Y	N	Y	Y	Y	Y	Y	Y	Y	N
Economic Development Plan	Y	Y	N	N	Y	Y	Y	Y	Y	Y	Y
Downtown Development/Re-Development Authority Plans	Advisor	Y	N	Y	Y	Y	Y	Y	Y	Y	Y
Enterprise Zones	Advisor	Y	N	Y	Y	Y	Y	Y	Y	Y	Y
Transportation Planning	VDOT/PDC	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Subdivision Regulations	N/A	Y	Y	Y	1	Y	Y	Y	Y	Y	1
Zoning Ordinance	N/A	Y	Y	Y	1	Y	Y	Y	Y	Y	1
Site Plan Review Procedures		Y	Y	Y	1	Y	Y	Y	Y	Y	1
Building Code (or ordinance) addresses flood	N/A	Y	1	1	1	Y	Y	1	Y	Y	1
Designated Building Official		Y	1	1	Y	Y	Y	1	Y	Y	1
Regular Inspection Protocols		Y	1	1	1	Y	Y	1	Y	Y	1
Civil Engineer Staff		N	1	5	N	N	5	N	N	N	N
GIS Coordinator		Y	1	Y	1	Y	Y	Y	Y	Y	1
Mitigation Projects											
Private Residential Elevations (self-financed)	N/A	Y	1	N/A	N/A	Y	Y	N/A	Y	Y	N/A
Resident and Community Outreach Inc. Ready.gov	Y	Y	1	1	1	Y	Y	N/A	Y	Y	1
Exclude critical infrastructure	N/A	Y	N	N/A	Y	Y	Y	N/A	Y	Y	N/A

Programs and Capabilities	NNPDC	Lancaster County	Town of Irvington	Town of Kilmarnock	Town of White Stone	Northumberland County	Richmond County	Town of Warsaw	Westmoreland County	Town of Colonial Beach	Town of Montross
from SFHA											
Elevate Residences or Property Protection through HMA grants	Y	2	2	N/A	N/A	2	2	2	N/A	N/A	N/A
Grant Officials		Y	N	N	N	N	Y	N	Y	Y	N
Natural Systems Protection											1
Natural or Cultural Resources Inventory		Y	Y	Y	Y	Y	Y	N	Y	Y	1
Open Space		Y	Y	Y	Y	Y	Y	Y	Y	Y	1
Parks and Recreation		Y	Y	N	N	Y	Y	N	Y	Y	N
Living Shorelines Program	Y	Y	Y	N/A	N/A	Y	Y	N/A	Y	Y	N/A
Stormwater Management and Water Quality Programs											
Stormwater Management Plan		Y	1	1	1	Y	Y	Y	Y	Y	1
Total Daily Maximum Load (TMDL) Stream Segments**	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Watershed Improvement Plans***	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Erosion or Sediment Control Program	N/A										
Erosion and Sediment Control Ordinances		Y	1	1	1	Y	Y	1	Y	Y	1
Floodplain Management	N/A										
RAFT Card (Resilience Adaptation Feasibility Tool)		Y	N/A	Y	Y	Y	Y	Y	Y	Y	N/A
Floodplain Administrator		Y	Y	Y	Y	Y	Y	1	Y	Y	1
Participates in NFIP		Y	Y	Y	Y	Y	Y	1	Y	Y	1
Year Joined NFIP		03/04/1988	10/18/1974	09/17/2010	09/24/1984	7/4/1989	3/16/1989	N/A	9/18/1987	9/18/1987	N/A
Effective FIRM Date		07/05/2022	08/04/1987	07/05/2022	11/17/2020	12/30/2021	06/26/2022	N/A	05/17/2022	05/17/2022	N/A

Programs and Capabilities	NNPDC	Lancaster County	Town of Irvington	Town of Kilmarnock	Town of White Stone	Northumberland County	Richmond County	Town of Warsaw	Westmoreland County	Town of Colonial Beach	Town of Montross
Additional Freeboard Requirements (inches)		18”	N/A	18”	N/A	24”	N/A	N/A	18"	36”	N/A
LiMWA standards in High Hazard Coastal Areas		Y	N	N/A	N/A	Y	N/A	N/A	Y	Y	N/A
Participates in CRS		N	N	N	N	N	N	N	N	N	N
Emergency Operations Management	LEPC	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Emergency Operations Plan		Y	1	1	1	Y	Y	1	Y	Y	1
Local Government EOPs	VDEM advisor	Y	1	1	1	Y	Y	1	Y	Y	1
Continuity of Operations Plan	N	N	N****	N	N	N****	Y	N	N	N	N
Warning Sirens or warning alert systems		Y	1	Y	1	Y	Y	1	Y	Y	1
Evacuation Plans		Y	1	1	1	Y	Y	1	Y	1	1
Shelter and Family Re-Unification Plan		Y	1	1	1	Y	Y	1	Y	1	1
Special Needs Population Emergency Planning		Y	1	1	1	Y	Y	1	Y	1	1
Companion Animal Sheltering and Re-Unification Plan		Y	1	1	1	Y	Y	1	Y	1	1
Dedicated Emergency Management Website	Y	Y	1	1	1	Y	Y	1	Y	1	1
Education Programs	N/A	Y	N/A	Y	1	Y	Y	1	Y	Y	1
School Facility Emergency Operations Plans		Y	N/A	Y	N/A	Y	Y	1	Y	unknown	1
School Emergency Notification, Evacuation and Emergency Planning		Y	N/A	Y	N/A	Y	Y	1	Y	unknown	1
College Campus Plans		Y	N/A	Y	N/A	N/A	Y	1	N/A	N/A	N/A

Programs and Capabilities	NNPDC	Lancaster County	Town of Irvington	Town of Kilmarnock	Town of White Stone	Northumberland County	Richmond County	Town of Warsaw	Westmoreland County	Town of Colonial Beach	Town of Montross
College/University Emergency Notification, Evacuation and Emergency Planning		Y	N/A	Y	N/A	N/A	Y	1	N/A	N/A	N/A
Tourism	3	Y	3	3	3	Y	Y	3	Y	Y & 3	3
Community Planner		Y	1	Y	Y	Y	Y	Y	Y	Y	1
Additional Capabilities						Debris Mgmt. Plan			Debris Mgmt. Plan		

Note: Many functions for towns are performed by their respective county. Stormwater management is regulated by the Department of Environmental Quality's Chesapeake Bay Preservation Program for all localities in addition to any local plans that may be adopted.

N/A - not applicable.
1 – Assisted by county
2 – Utilizes the NNPDC for assistance.
3 – Utilizes the Northern Neck Regional Tourism Cooperative and/or River Realm
4 – Utilizes the Northern Neck Regional Historic Preservation Society
5 – Contracted as needed.
*Currently under revision.
**All stream segments in each county are a part of the Chesapeake Bay Total Daily Maximum Load (TMDL) monitoring area.
***All stream segments part of the Chesapeake Bay WIP.
**** Currently in progress. (Town of Irvington is in development.) (Northumberland County's COOP is complete and to be presented for adoption in January 2023) (Lancaster County's Comprehensive Plan is planned to be adopted in March 2023.)

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8.6 Current and Completed Hazard Mitigation Programs and Projects

Table 8-4 Hazard Mitigation Programs and Projects

Jurisdiction	Mitigation Action	Hazards Addressed
Lancaster	Considered and took steps towards the CRS Program. Attended CRS Workshop.	Property Protection Education and Community Outreach
Lancaster	Completed Private Demonstration Sites - Develop vegetative planting programs for public shoreline property to serve as a model for public education purposes.	Property Protection Public Education & Outreach
Lancaster	Initiated NOAA radio purchase for Sheriff's Office	Emergency Services
Lancaster	Adopt or maintain a floodplain management ordinance that at a minimum regulates the following: Issue permits for All proposed developments in the SFHA, Obtain, review, and utilize any base flood elevation and floodway data, and require BFE data for subdivisions proposals and other development proposals larger than 50 lots or five acres; Identify measures to keep All new and substantially improved construction reasonably safe from flood to or above the Base Flood Elevation (BFE), including anchoring, using flood resistant materials, designing, or locating utilities, and service facilities to prevent water damage;	Property Protection Structural
Lancaster	Enforce the floodplain management ordinance by monitoring compliance and taking remedial action to correct violations by increasing staff to assist with accomplishing this goal.	Property Protection
White Stone	Initiated Phase 1 of a new sewage system for the town. Connections to citizens have begun.	Property Protection
White Stone	Initiated the development and implemented a ditch maintenance program consisting of routine inspections and subsequent debris removal	Property Protection Natural Resource Protection
Northumberland	Researched and updated FIRMS for accessory structures.	Property Protection
Northumberland	Adopt or maintain a floodplain management ordinance that at a minimum regulates the following: Issue permits for All proposed developments in the SFHA, Obtain, review, and utilize any base flood elevation and floodway data and require BFE data for subdivisions proposals and other development proposals larger than 50 lots or 5 acres. Identify	Property Protection

Jurisdiction	Mitigation Action	Hazards Addressed
	measures to keep all new and substantially improved construction reasonably safe from flood to or above the Base Flood Elevation (BFE), including anchoring, using flood resistant materials, designing, or locating utilities, and service facilities to prevent water damage;	
Northumberland	Initiated and continuing the adoption of activities that extend beyond the minimum requirements, including those identified for participation in the Community Rating System, freeboard, prohibition of production or storage of chemicals in SFHA, prohibition or certain types of structures such as: hospitals, nursing homes, jails, prohibition of certain types of residential housing such as manufactured homes, and finally floodplain ordinances, that prohibit any new residential or non-residential structures in the SFHA.	Structural Property Protection
Richmond	Sought and completed training for GIS staff and increased in house GIS capabilities.	Property Protection Prevention Emergency Services
Richmond	Adopt or maintain a floodplain management ordinance that at a minimum regulates the following. Issue permits for All proposed developments in the SFHA, Obtain, review, and utilize any base flood elevation and floodway data, and require BFE data for subdivisions proposals and other development proposals larger than 50 lots or five acres: Identify measures to keep All new and substantially improved construction reasonably safe from flood to or above the Base Flood Elevation (BFE), including anchoring, using flood resistant materials, designing, or locating utilities, and service facilities to prevent water damage;	Property Protection Flooding
Warsaw	Initiated stormwater management measures – sidewalk and drainage project.	Property Protection
Westmoreland	Sought and attended training and system upgrades for GIS capabilities.	Property Protection Prevention Emergency Services
Westmoreland	Accomplish growth to enforce zoning and building codes to prevent construction within the floodplain	Structural Property Protection
Westmoreland	Evaluate the potential costs versus benefits of continuing the freeboard requirement for all new structures within the 100-year floodplain.	Structural

Jurisdiction	Mitigation Action	Hazards Addressed
Westmoreland	Adopt or maintain a floodplain management ordinance that at a minimum regulates the following: Issue permits for All proposed developments in the SFHA, Obtain, review, and utilize any base flood elevation and floodway data, and require BFE data for subdivisions proposals and other development proposals larger than 50 lots or five acres; Identify measures to keep all new and substantially improved construction reasonably safe from flood to or above the Base Flood Elevation (BFE), including anchoring, using flood resistant materials, designing or locating utilities, and service facilities to prevent water Damage.	Property Protection Structural
Westmoreland	Integrated elements of hazard mitigation into the county comprehensive plan.	Prevention Natural Resources Protection Property Protection
Colonial Beach	Evaluate exiting storm water system to determine if it is adequate for existing (or future) flood Hazards. Completed and writing plan.	Property Protection Structural Natural Resources Protection
Colonial Beach	Develop a detailed building inventory for all structures in the jurisdiction, which catalogues information such as value of the structure, contents, age, location (latitude and longitude), etc.	Structural Property Protection Emergency Services
Colonial Beach	Integrated hazard mitigation elements into the town's comprehensive plan and initiated integration into the resiliency plan.	Emergency Services Property Protection Natural Resources Protection
Colonial Beach	Investigate, develop, or enhance a regional public notification system utilizing Code Red.	Outreach & Education Emergency Services
Colonial Beach	Adopt or maintain a floodplain management ordinance that at a minimum regulates the following: Issue permits for All proposed developments in the SFHA, Obtain, review, and utilize any base flood elevation and floodway data, and require BFE data for subdivisions proposals and other development proposals larger than 50 lots or five acres; Identify measures to keep all new and substantially improved construction reasonably safe from flood to or above the Base Flood Elevation (BFE), including anchoring, using flood resistant materials, designing or locating utilities, and service facilities to prevent water Damage.	Property Protection Structural
Colonial Beach	Enforce the floodplain management ordinance by monitoring compliance and taking remedial action	Property Protection

Jurisdiction	Mitigation Action	Hazards Addressed
	to correct violations by increasing staff to assist with accomplishing this goal.	
Montross	Adopt or maintain a floodplain management ordinance that at a minimum regulates the following: Issue permits for All proposed developments in the SFHA, Obtain, review, and utilize any base flood elevation and floodway data, and require BFE data for subdivisions proposals and other development proposals larger than 50 lots or five acres; Identify measures to keep all new and substantially improved construction reasonably safe from flood to or above the Base Flood Elevation (BFE), including anchoring, using flood resistant materials, designing or locating utilities, and service facilities to prevent water Damage as is applicable to the locality.	Property Protection Structural

8.7 Summary and Conclusions

In conclusion, there are several areas which may be further investigated to determine the relevance of developing hazard mitigation strategies to fill gaps or shortcomings. Particularly these areas include resources and coordination.

As noted, additional time and resources need to be devoted at the local level on hazard mitigation related activities. These activities include project identification, data gathering, and overall knowledge about FEMA grants. Furthermore, additional education and training for current staff regarding hazard mitigation, the resources available, and methods of using specified grant funding could assist the Northern Neck Region in reducing future risk. This knowledge would also assist in preparing better project applications that may be selected based on a competitive selection process. Increasing staff and resources would subsequently allow for greater coordination among all levels of government.

Jurisdictions and communities in the Northern Neck Region are still processing and recovering from the economically damaging COVID-19 pandemic that was declared a State of Emergency in Virginia in March 2020. At the time of this update the COVID-19 pandemic is ongoing, and jurisdictions will need to utilize lessons learned from this event to improve their respective locality plans.

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Section 9
Mitigation Action Plan

Contents of this Section

9.1 44 CFR Rule Requirement for the Mitigation Action Plan

Requirement §201.6(c)(3): *The plan shall include a mitigation strategy that provides the jurisdiction's blueprint for reducing the potential losses identified in the risk assessment, based on existing authorities, policies, programs, and resources, and its ability to expand on and improve these existing tools.*

Requirement §201.6(c)(3)(i): *The hazard mitigation strategy shall include a] description of mitigation goals to reduce or avoid long-term vulnerabilities to the identified hazards.*

Requirement §201.6(c)(3)(ii): *The mitigation strategy **shall** include a] section that identifies and analyzes a comprehensive range of specific mitigation actions and projects being considered to reduce the effects of each hazard, with particular emphasis on new and existing buildings and infrastructure. [The mitigation strategy] must also address the jurisdiction's participation in the National Flood Insurance Program (NFIP), and continued compliance with NFIP requirements, as appropriate.*

Requirement: §201.6(c)(3)(iii*):* *The mitigation strategy section **shall** include] an action plan describing how the actions identified in section (c)(3)(ii) will be prioritized, implemented, and administered by the local jurisdiction. Prioritization **shall** include a special emphasis on the extent to which benefits are maximized according to a cost benefit review of the proposed projects and their associated costs.*

Requirement §201.6(c)(3)(iv): *For multi-jurisdictional plans, there **must** be identifiable action items specific to the jurisdiction requesting Federal Emergency Management Agency (FEMA) approval or credit of the plan.*

9.2 Hazard Mitigation Goals

This section contains goals, objectives, and action items for the Northern Neck Regional Hazard Mitigation Plan. For the purposes of this Plan, the following definitions are accepted:

- **Goals** are general guidelines that explain what the county and participating municipalities want to achieve. Goals are expressed as broad policy statements representing desired long-term results.
- **Objectives** (or strategies) describe strategies to attain an identified goal. Objectives are more specific statements than goals; objectives are also usually measurable and can have a defined completion date.
- **Mitigation Actions** are the specific steps (projects, policies, and programs) that advance a given objective. They are highly focused, specific, and measurable.

The hazard identification and risk assessment in Sections 6 and 7 consisted of identifying the hazards that affect Northern Neck Region and the potential for damage to community assets that are vulnerable to the hazards. Section 8 identified the strengths and weaknesses of state and local capabilities. The goals and objectives described below, in Table 9-1 were established by the Northern Neck PDC's Hazard Mitigation Steering Committee and validated by the Northern Neck PDC's Hazard Mitigation Working Group members in response to these assessment results. Many of the actions described below apply to the counties and all participating communities.

The broad goals of the Northern Neck Regional Hazard Mitigation Plan are as follows:

Table 9-1: 2023-2027 Northern Neck Region Goals and Objectives

Goal #1	Promote sustainable development utilizing alternative pathways that encompass proactive adaptations to mitigate against the risks posed by natural hazards, anticipate vulnerabilities, and strengthen the regional resiliency.
Objective	Increase green infrastructure measures utilizing natural vegetation and soils, pervious pavements, buffer zones, and living shoreline programs reducing storm water runoff and improve the drainage of flood waters.
2017 Goal	Promote new development that avoids undue risks posed by natural hazards and is resilient to natural disasters.
Goal #2	Monitor the impacts of climate change utilizing multiple sources of scientific expertise, historical data, and technological advances to expand problem solving options and mechanisms that address the threat of natural hazards to the Northern Neck region.
Objective	Utilize the Coastal Resiliency Master Plan data and seek out new studies and educational opportunities. Guide jurisdictions in the integration of climate change and hazard mitigation into other policy and planning efforts, to include comprehensive plans, local resiliency plans, and mitigation project plans.

2017 Goal	Address natural hazards and vulnerabilities that represent a threat to the community.
Goal #3	Pursue opportunities to increase the resiliency of critical infrastructure by means of ongoing capabilities assessments, known hazard monitoring, and development of inclusive strategies in the communities.
Objective	Employ lessons learned from participation in the RAFT Program and utilize the Resilience Action Checklists in prioritizing mitigation strategies and seeking sources to assist in implementation.
2017 Goal	Ensure that the appropriate infrastructure is in place and maintained to ensure continued functionality of all critical services necessary to protect the residents, property, and critical infrastructure of the Northern Neck Region.
Goal #4	Enhance the capabilities of local government to address natural hazards and the effect of natural hazards on infrastructure such as high hazard potential dams, to benefit the whole community for increased resilience.
Objective	Provide technical assistance to jurisdictions in locally led planning efforts. Emphasize a culture of preparedness through public engagement and educational opportunities, strengthening infrastructure and reinforcing existing structures, coding, and enforcement.
2017 Goal	Enhance the capabilities of local government to address natural hazards to enhance the whole community for increased resilience.
Goal #5	Coordinate activities and educational opportunities focusing on natural hazard awareness and disaster preparedness activities to edify populations in the Northern Neck Region. Provide knowledge, motivate, and teach skills to citizens and visitors, focusing on vulnerable populations, to mitigate the risk of casualties.
Objective	Expand upon current and create new public outreach activities. Research and study the benefits of creating a regional “Program for Public Information” (PPI) Committee to assist localities with education, distribution, and management.
2017 Goal	Increase natural hazard awareness of our citizens. Educate the Northern Neck Region’s citizens and part time residents on citizen and Community Hazard resilience.

Goal #6	Encourage education and assist communities in the development and enforcement of solid floodplain management programs and participation/compliance with the National Flood Insurance Program (NFIP), utilizing available resources and tools to identify the floodplains and risks areas.
Objective	Lead communities in flood mitigation efforts utilizing data and Flood Resistant Design and Construction guidance (ASCE 24-05) to limit development in floodplain areas, adopt and enforce building codes that increase resiliency and decrease natural habitat detriment, and to plan and execute projects for stormwater management/stormwater runoff improvements. Promote implementing floodplain management techniques that exceed minimum requirements.
2017 Goal	Participate and Comply with the National Flood Insurance Program (NFIP) through Floodplain Identification, Mapping, and Floodplain Management.

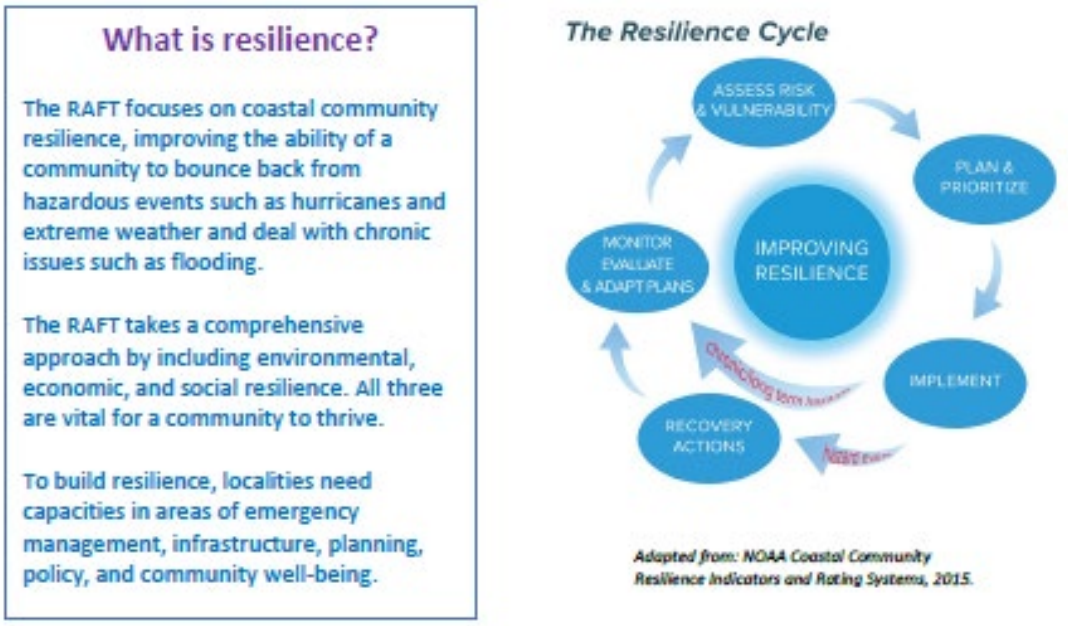
Specific objectives and actions to support these goals are described in Table 9-2 and jurisdiction specific actions are described in Table 9-3.

9.2.1 RAFT

The Resilience Adaptation Feasibility Tool is an instrument provided through a collaborative effort of The Institute for Engagement & Negotiation at the University of Virginia, The Virginia Coastal Policy Center at William & Mary Law School, and Old Dominion University/Virginia Sea Grant Climate Adaptation and Resilience Program. The tool assists communities in self-assessment and emergency risk communications to identify needs, goals, and objectives. Participating communities receive a report referred to as the "RAFT Scorecard," which provides an in-depth valuation of the community's resilience, and then attend a workshop to review the information and recommendations on the RAFT Scorecard. A plan for improving mitigation actions in the community starts at this workshop, followed by an established timeline for the review of completed projects at the one-year mark. Participating in a RAFT process provides the communities with opportunities to identify planning tasks and more funding opportunities and can increase a community's Community Rating System (CRS) score.

Eight of the ten participating jurisdictions participated in a RAFT process in 2020-2022, with Montross and Irvington being included in their respective counties' process. The results of the workshops were taken back to the jurisdictions and utilized by emergency management personnel to strive for a better understanding of their needs and to begin working through the action plan created.

Figure 9-1: Resilience Cycle



Source: RAFT - https://raft.ien.virginia.edu/

Each jurisdiction was scored based on categories as defined below and then demonstrated in Table 9-2 and each category offers up to possible points.

- *Policy, Leadership, & Collaboration* – Measures policy and legislation in place for coastal resilience and includes coordination and collaboration between various levels of government, and how accessible and open government data is to the public.
- *Risk Assessment & Emergency Management* – Examines how well a locality has conducted risk assessments to prepare for coastal storm hazards, identified vulnerable populations and their needs during or after a coastal storm hazard, and developed plans for disaster preparedness, including a Hazard Mitigation Plan.
- *Infrastructure Resilience* – Assesses how well the locality has identified methods and plans for storm water and protecting critical infrastructure including using natural and nature-based features (NNBF).
- *Planning for Resilience* – Assesses the comprehensive plan and zoning code for resilience, how a locality is using incentives to promote resilience in building and development, how policies protect ecosystems, how they use green infrastructure to improve resilience, and how much resilience has been incorporated into planning.
- *Community Engagement, Health, and Wellbeing* – Assesses how the community engages with residents in planning for coastal storm hazard including social equity considerations and examines the locality's attention to issues of health and wellness during and after coastal events.

Table 9-2: Northern Neck Jurisdiction's RAFT Scorecard Data

Jurisdiction	Policy, Leadership, & Collaboration	Risk Assessment & Emergency Management	Infrastructure Resilience	Planning for Resilience	Community Engagement, Health, & Well Being	Total Score
Lancaster County	14	16	14	12	13	69
Town of Irvington	n/a	n/a	n/a	n/a	n/a	Incorporated into Lancaster County's
Town of Kilmarnock	9	13	10	9	10	51
Town of White Stone	7	15	9	3	5	39
Northumberland County	14	15	10	17	11	67
Richmond County	11	16	11	9	8	55
Town of Warsaw	8	15	11	14	13	62
Westmoreland County	11	18	13	10	6	58
Town of Colonial Beach	9	14	9	12	10	54
Town of Montross	n/a	n/a	n/a	n/a	n/a	Incorporated into Westmoreland County's

The Commonwealth of Virginia published the *Coastal Resilience Master Plan* in 2021 in which 2,000 stakeholders assisted to compile the data and subsequent publication that presents the impacts of future flooding scenarios on coastal Virginia, its resources, and community infrastructure. Takeaways from the plan were alarming for an area such as the Northern Neck with data providing indications of the following between 2020 and 2080:

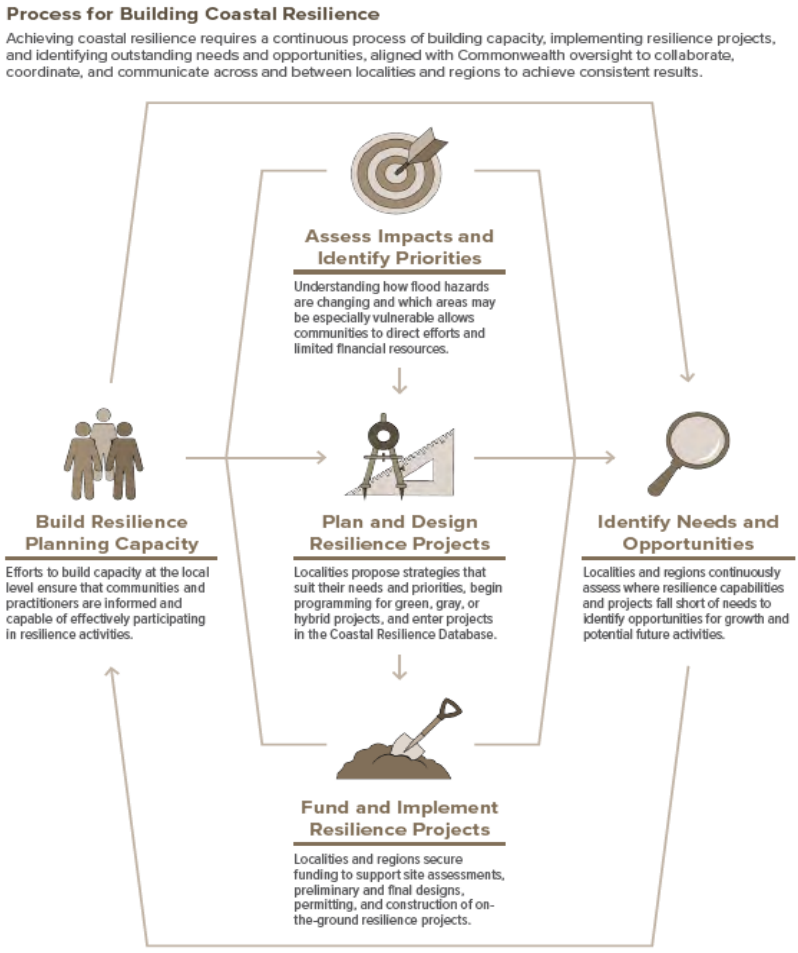
- An estimated 170,000 acres (89%) of existing tidal wetlands and 3,800 acres (38%) of the existing dunes and beaches may be permanently lost to open water.
- Annualized flood damages are expected to increase by 1,300% ($0.4 billion to $5.1 billion)
- The number of residents and their homes that will be exposed to extreme coastal flooding shows projections growing 160% (360,000 to 943,000)
- Buildings of all natures, residential, public, and commercial, present a potential increase from 140,000 to 340,000 (nearly 150%)
- An increase of almost 280% is projected in the number of miles of roadway exposed to chronic coastal flooding (approximately 1,000 to 3,800 miles)

The Commonwealth of Virginia Coastal Resilience Master Plan is a phased plan, the 2024 phase is forecasted to address subjects relative to pluvial flooding, riverine flooding, and compound flooding, in addition to expanding upon current resiliency projects, working with stakeholders, and extending the plan actions to jurisdictions further inland to expand statewide resiliency.

The Northern Neck Region embraces the State's stance on coastal resiliency and is committed to the following guiding principles – the "Commonwealth Resilience Planning Principles", which this plan has incorporated throughout.

1. Acknowledge climate change and its consequences, and base decision making on the best available science.
2. Identify and address socioeconomic inequities and work to enhance equity through adaptation and protection efforts.
3. Utilize community and regional scale planning to the maximum extent possible, seeking region-specific approaches tailored to the needs of individual communities.
4. Understand fiscal realities and focus on the most cost-effective solutions for the protection and adaptation of communities, businesses, and critical infrastructure. The solutions will, to the extent possible, prioritize effective natural solutions.
5. Recognize the importance of protecting and enhancing green infrastructure in all regions and in the coastal region, natural coastal barriers, and fish and wildlife habitat by prioritizing nature-based solutions.

Figure 9-2: Process for Building Coastal Resilience



Source: The Commonwealth of Virginia Coastal Resilience Master Plan

9.2.2 Community Rating System

Per FEMA, "The Community Rating System (CRS) is a voluntary incentive program that recognizes and encourages community floodplain management practices that exceed the minimum requirements of the NFIP." (https://www.fema.gov/floodplain-management/community-rating-system). Jurisdictions that participate in the CRS program are demonstrating that efforts are being taken to do the follow:

- Lessen and avoid flood damage to insurable property
- Support and reinforce the insurance aspects of the NFIP
- Foster comprehensive floodplain management

The Northern Neck Regional jurisdictions that participated in the RAFT process above participated in a workshop to explore the potential of joining the CRS. The workshops and RAFT assisted each jurisdiction in elevating their scores and increasing the potential for lower insurance rates and it is a step towards already being compliant with the program at the time a decision may be made to join. Jurisdictions are awarded points and a community classification based on criteria in four categories:

- Public Information

- Mapping and Regulations
- Flood Damage Reduction
- Warning and Response

Flood insurance premium rates in Community Rating System communities are discounted in increments of 5%. Participation in the CRS is under consideration by the Northern Neck Region's jurisdictions and is a noted 2023 Mitigation Action Goal for several jurisdictions. This can be viewed in the jurisdiction matrixes below.

9.3 Identification and Analysis of Mitigation Actions

Actions are detailed and specific strategies and projects that help support regional natural hazard resiliency and mitigation goal achievement. The actions from the 2017 plan formed a platform for discussing mitigation actions for the 2023 plan. The goal-action mitigation strategy structure was continued, and objectives were outlined as well to meet current standards and to provide a clear picture of the mission of the mitigation actions and strategies. A discussion was held via electronic means, interviews, and conversations at official meetings concerning the 2017 plan mitigation actions and strategies to help frame which actions should be continued and what organizational form the 2023-2027 mitigation actions should take.

Each community participated in an individual interview process attended by local personnel, NNPDC Staff, and Olson Group, LTD personnel. In addition, the jurisdiction representatives evaluated the actions for inclusion in the plan with the following criteria from the FEMA Local Mitigation Planning Guidebook:

- What long-term goals does the community want to achieve?
- What specific actions will local government, community organizations, and others take to reduce risks to hazards?
- How will the actions be implemented and prioritized?
- How effectively will the action protect lives and prevent injuries?
- How significant will the action be at eliminating or reducing damage to structures and infrastructure?
- Is the mitigation action technically feasible? Is it a long-term solution?
- Does the public support the mitigation action? Is there the political will to support it?
- Does the community have the personnel and administrative capabilities to implement the action and maintain it, or will outside help be necessary?
- Does the action advance other community objectives, such as capital improvements, economic development, environmental quality, or open space preservation?

The 2023-2027 mitigation actions are organized into six major categories. Mitigation actions per community are organized by the following action types:

1) Prevention
    a. Planning and zoning
    b. Building codes
    c. Open space reservations
    d. Floodplain regulations
    e. Stormwater management regulations
    f. Drainage system maintenance

   g. Capital improvements programming
   h. Shoreline/Riverine setbacks
2) Property Protection
   a. Acquisition/demolition
   b. Relocation
   c. Building elevation
   d. Critical facilities protection
   e. Retrofitting (wind proofing, flood proofing, seismic design)
   f. Safe rooms, shutters, shatter resistant glass
   g. Insurance
3) Natural Resource Protection
   a. Land Acquisition
   b. Floodplain protection
   c. Watershed management
   d. Beach and dune preservation
   e. Riparian buffers
   f. Forest and vegetation management (fire resistant landscaping, fuel breaks)
   g. Erosion and sediment control
   h. Wetland preservation and restoration
   i. Habitat preservation
   j. Slope stabilization
   k. Historic properties and archaeological site preservation
4) Structural Projects
   a. Reservoirs
   b. Dams/levees/dikes/floodwalls/seawalls
   c. Diversions/detention/retention
   d. Channel modification
   e. Beach nourishment
   f. Storm sewers
5) Emergency Services
   a. Warning systems
   b. Evacuation planning and management
   c. Emergency response training and exercises
   d. Sandbagging for flood protection
   e. Installing temporary shutters for wind protection
6) Education & Awareness
   a. Outreach projects
   b. Speaker series/demonstration events
   c. Hazard mapping
   d. Real estate disclosure
   e. Library materials
   f. School children's educational programs
   g. Hazard expositions

Table 9-3: 2023-2027 Northern Neck Regional Mitigation Actions

#	Mitigation Action	Hazard(s) Addressed	Project Type	Applies to Existing or New Structures	Responsible Party	Timeframe	Estimated Cost ($)	Possible Funding Source	Priority
	Northern Neck Region Planning District Commission								
1	Support mitigation projects that conform to the requirements of the HMA program in terms of eligibility for participation and projects.	▪ Tornado ▪ Severe Weather ▪ Wildfire ▪ Flooding ▪ Coastal Erosion ▪ Landslide ▪ Drought ▪ Heatwave ▪ Earthquake	▪ Prevention ▪ Property Protection ▪ Natural Resource Protection ▪ Structural ▪ Emergency Services ▪ Education & Outreach	All	Agency Wide	Initiated & Ongoing	TBD on a case-by-case basis	HMGP FMA	High
2	Promote and expand upon the Living Shoreline Initiative in both its non-structural and combined structural/non-structural aspects. Utilize techniques such as grading land away from eroding shorelines, maintaining, and upgrading riparian buffers adjacent to shorelines, and implementing green infrastructure and stormwater management improvements.	▪ Flooding ▪ Coastal Erosion	▪ Prevention ▪ Property Protection ▪ Natural Resource Protection ▪ Structural ▪ Emergency Services ▪ Education & Outreach	All	Agency Wide	Initiated & Ongoing	$1 million	Coastal Resiliency Programs HMGP	High

#	Mitigation Action	Hazard(s) Addressed	Project Type	Applies to Existing or New Structures	Responsible Party	Timeframe	Estimated Cost ($)	Possible Funding Source	Priority
3	Provide technical assistance to Northern Neck jurisdictions, to integrate mitigation plan requirements and actions into other appropriate planning mechanisms such as comprehensive and resiliency plans, and capital improvement plans.	▪ Tornado ▪ Severe Weather ▪ Wildfire ▪ Flooding ▪ Coastal Erosion ▪ Landslide ▪ Drought ▪ Heatwave ▪ Earthquake	▪ Prevention ▪ Property Protection ▪ Natural Resource Protection ▪ Structural ▪ Emergency Services ▪ Education & Outreach	All	Agency Wide	Ongoing	N/A	Existing Budget	High
4	Promote practices implementing nature-based approaches that increase regional resiliency. Projects sought include but are not limited to: Ecosystem restoration and adaptation, green infrastructure, and eco-system-based approaches addressing climate change, coastal resources, and conservation of protected areas.	▪ Tornado ▪ Severe Weather ▪ Wildfire ▪ Flooding ▪ Coastal Erosion ▪ Landslide ▪ Drought ▪ Heatwave ▪ Earthquake	▪ Prevention ▪ Property Protection ▪ Natural Resource Protection	All	Agency Wide	Ongoing	N/A	Existing Budget	High

#	Mitigation Action	Hazard(s) Addressed	Project Type	Applies to Existing or New Structures	Responsible Party	Timeframe	Estimated Cost ($)	Possible Funding Source	Priority
5	Seek data sources and educational opportunities that increase regional hazards awareness and provide additional knowledge to jurisdictional personnel that will be applied to project building and initiation.	▪ Tornado ▪ Severe Weather ▪ Wildfire ▪ Flooding ▪ Coastal Erosion ▪ Landslide ▪ Drought ▪ Heatwave ▪ Earthquake	▪ Prevention ▪ Emergency Services ▪ Education & Outreach	All	Agency Wide	1-2 years	$50,000	Existing Budget	High
6	Expand upon current and create new public outreach activities. Utilize the PDC's website to advise citizens and visitors of local natural hazard risks, encourage citizen-based mitigation efforts and disaster preparation. Consider creating a "Program for Public Information" (PPI) Committee to assist with educating, distribution, and management. (*PPI is a suggestion under Activity 322 in the CRS Manual). Boost increased exposure and awareness to visitors, tourists, and part-time residents.	▪ Tornado ▪ Severe Weather ▪ Wildfire ▪ Flooding ▪ Coastal Erosion ▪ Landslide ▪ Drought ▪ Heatwave ▪ Earthquake	▪ Education & Outreach	All	Agency Wide	Ongoing	$60,000	DCR, USACE	High
7	Seek education and funding to initiate a program that will organize investigations and risk assessments	▪ Flooding	▪ Prevention ▪ Property Protection	All	Agency Wide	1-3 years	N/A	Existing Budget	High

#	Mitigation Action	Hazard(s) Addressed	Project Type	Applies to Existing or New Structures	Responsible Party	Timeframe	Estimated Cost ($)	Possible Funding Source	Priority
	that will utilize FEMA's risk prioritization methodology to define the HHPDs within the Region.		▪ Natural Resource Protection ▪ Structural		Regional Planner Project Manager				
8	Provide technical assistance to Northern Neck jurisdictions to organize projects that will repair, remove, or provide other structural or non-structural means to rehabilitate eligible HHPDs	▪ Flooding	▪ Prevention ▪ Property Protection ▪ Natural Resource Protection ▪ Structural	All	Agency Wide Project Manager Regional Planner	5 years	N/A	Existing Budget	Medium

Mitigation action plans were developed for all the identified actions. Each mitigation action plan includes:

- Goal(s) it is intended to help achieve,
- Hazard(s) it is designed to mitigate,
- Agency assigned responsibility for carrying out the strategy,
- Status of the goal,
- Timeframe for completion, and
- Priority level for its implementation (high, medium, or low).

Table 9-4: 2023-2027 Northern Neck Region Jurisdiction Specific Mitigation Actions

#	Mitigation Action	Hazard(s) Addressed	Project Type	Applies to Existing or New Structures	Responsible Party(s)	Timeframe	Estimated Cost ($)	Possible Funding Source	Priority
Lancaster County									
1	Support mitigation projects that conform to the requirements of the HMA program in terms of eligibility for participation and projects.	▪ Tornado ▪ Severe Weather ▪ Wildfire ▪ Flooding ▪ Coastal Erosion ▪ Landslide ▪ Drought ▪ Heatwave ▪ Earthquake	▪ Prevention ▪ Property Protection ▪ Natural Resource Protection ▪ Structural ▪ Emergency Services ▪ Education & Outreach	All	Lancaster County Emergency Management Building & Zoning NNPDC	Initiated & Ongoing	Staff Time	Lancaster County, HMGP, CDBG	Medium
2	Research and incorporate additional mitigation techniques into community spaces that will further protect flood zones, increase green-space, and improve stormwater drainage capacity, discouraging items such as impermeable surfaces, the disturbance of natural vegetation, or penetration into the floodplains with any structural development not meant to assist in retaining landforms.	▪ Flood ▪ Coastal Erosion	▪ Prevention ▪ Property Protection ▪ Natural Resource Protection ▪ Structural	New	Lancaster County Emergency Management Public Works Building & Zoning	1-3 years	Staff Time	Lancaster County, FMA, HMGP, BRIC, DRC	High
3	Seek funding sources to build nature-based shoreline stabilization strategies. Continue best management practices in shoreline erosion prevention, and mandate that new subdivisions require coordinated shoreline protection plans.	▪ Flood ▪ Coastal Erosion	▪ Property Protection ▪ Natural Resource Protection	All	Lancaster County Building & Zoning Floodplain Manager	Initiated & Ongoing	Staff Time	CDBG, DRC, HMGP, USACE, VA DEQ	High

4	Integrate mitigation plan requirements and actions into other appropriate planning mechanisms such as comprehensive and resiliency plans, and capital improvement plans.	▪ Tornado ▪ Severe Weather ▪ Wildfire ▪ Flooding ▪ Coastal Erosion ▪ Landslide ▪ Drought ▪ Heatwave ▪ Earthquake	▪ Planning	All	Lancaster County County Administration Emergency Management	Initiate & Ongoing	NNPDC Staff Time, County Staff Time	CDBG, HMGP	Medium
5	Consider using free, simple, and/or permanent easement to prevent development in the highest priority undeveloped floodplain (and/or wetlands) areas. Use these areas as public open space for passive recreational uses including water access.	▪ Flooding	▪ Prevention ▪ Property Protection ▪ Natural Resource Protection	New	Lancaster County Floodplain Manager Building & Zoning	Ongoing	TBD	HMGP, DRC	Low
6	Identify areas of repetitive loss and severe repetitive loss structures to seek appropriate improvements under HMA guidelines.	▪ Flooding	▪ Prevention ▪ Property Protection	Existing	Lancaster County Building & Zoning NNPDC	1-5 years	Staff Time, Project Costs TBD	FMA, HMGP	High
7	Encourage waterfront property owners in existing communities to consider community based multi-parcel shoreline protection strategies before they pursue individual approaches.	▪ Coastal Erosion	▪ Prevention ▪ Property Protection ▪ Natural Resource Protection ▪ Structure	Existing	Lancaster County Building & Zoning NNPDC	Ongoing	Staff Time, NNPDC Staff Time	FMA, HMGP	High

8	Continue to upgrade and expand the current GIS capabilities, training, and resources throughout the community.	▪ Tornado ▪ Severe Weather ▪ Wildfire ▪ Flooding ▪ Coastal Erosion ▪ Landslide ▪ Drought ▪ Heatwave ▪ Earthquake	▪ Planning ▪ Emergency Services	Existing	Lancaster County County Administration GIS Coordinator	Initiated & Ongoing	Staff Time	CDBG	Medium
9	Seek further improvements to hazard mitigation elements that will enable the community to become eligible for CRS participation.	▪ Flooding	▪ Prevention ▪ Emergency Services ▪ Education and Outreach	All	Lancaster County Emergency Management Building & Zoning	Initiated & Ongoing	Staff Time, NNPDC Staff Time	HMGP	Low
10	Expand the purchase and training on the use of NOAA radios. Provide NOAA radios to public facilities.	▪ Tornado ▪ Severe Weather ▪ Wildfire ▪ Flooding ▪ Coastal Erosion ▪ Landslide ▪ Drought ▪ Heatwave ▪ Earthquake	▪ Planning ▪ Emergency Services	Both	Lancaster County Emergency Management	Initiated & Ongoing	$50,000	CDBG, HMGP	High
11	Document and maintain records of elevation data that document lowest floor elevation for new or substantially improved structures.	▪ Flooding	▪ Planning ▪ Structural	Both	Lancaster County Building & Zoning	Initiated & Ongoing	$150,000	CDBG, FMA, HMGP	High
12	Inform community property owners about changes to the DFIRM/FIRM that may impact their insurance rates.	▪ Flooding	▪ Education and Outreach	Both	Lancaster County Building & Zoning	Ongoing	Staff Time, NNPDC Staff Time	Lancaster County	Medium

13	Expand upon current and create new public outreach activities. Utilize the jurisdiction's website to advise citizens and visitors of local natural hazard risks, encourage citizen-based mitigation efforts and disaster preparation. Consider creating a "Program for Public Information" (PPI) Committee to assist with educating, distribution, and management. (*PPI is a suggestion under Activity 322 in the CRS Manual). Boost increased exposure and awareness to visitors, tourists, and part-time residents.	▪ Tornado ▪ Severe Weather ▪ Wildfire ▪ Flooding ▪ Coastal Erosion ▪ Landslide ▪ Drought ▪ Heatwave ▪ Earthquake	▪ Education and Outreach	All	Lancaster County Emergency Management Community Planning	Initiated & Ongoing	Staff Time, NNPDC Staff Time	Lancaster County, CDBG, FMA, HMGP	High
14	Seek funding for and implement early warning signals/systems/emergency warning tools for residents with increased attention to vulnerable populations.	▪ Tornado ▪ Severe Weather ▪ Wildfire ▪ Flooding ▪ Coastal Erosion ▪ Landslide ▪ Drought ▪ Heatwave ▪ Earthquake	▪ Planning ▪ Property Protection ▪ Emergency Services	All	Lancaster County County Administration Emergency Management	New	Staff Time, NNPDC Staff Time	Lancaster County, CDBG, FMA, HMGP	High
15	Develop a resident emergency preparedness plan that identifies risks and needs, including knowledge of water safety.	▪ Tornado ▪ Severe Weather ▪ Wildfire ▪ Flooding ▪ Coastal Erosion ▪ Landslide ▪ Drought ▪ Heatwave ▪ Earthquake	▪ Planning	All	Lancaster County Emergency Management	New	Staff Time, Consultant	Lancaster County, EMPG	Medium

16	Seek education and funding to initiate a program that will organize investigations and risk assessments that will utilize FEMA's risk prioritization methodology to define the HHPDs within the Region.	▪ Flooding	▪ Prevention ▪ Property Protection ▪ Natural Resource Protection ▪ Structural	All	Lancaster County Emergency Management Floodplain Administrator	New	Staff Time	Existing Budget	High

#	Mitigation Action	Hazard(s) Addressed	Project Type	Applies to Existing or New Structures	Responsible Party(s)	Timeframe	Estimated Cost ($)	Possible Funding Source	Priority
Town of Irvington									
1	Support mitigation projects that conform to the requirements of the HMA program in terms of eligibility for participation and projects.	▪ Tornado ▪ Severe Weather ▪ Wildfire ▪ Flooding ▪ Coastal Erosion ▪ Landslide ▪ Drought ▪ Heatwave ▪ Earthquake	▪ Prevention ▪ Property Protection ▪ Natural Resource Protection ▪ Structural ▪ Emergency Services ▪ Education & Outreach	All	Town of Irvington Building & Zoning NNPDC	Initiated & Ongoing	Staff Time	Irvington, HMGP, CDBG	Medium
2	Integrate mitigation plan requirements and resiliency actions into other appropriate planning mechanisms such as comprehensive plans and capital improvement plans.	▪ Tornado ▪ Severe Weather ▪ Wildfire ▪ Flooding ▪ Coastal Erosion ▪ Landslide ▪ Drought ▪ Heatwave ▪ Earthquake	▪ Planning	All	Town of Irvington Emergency Management Town Administration	Ongoing	NNPDC Staff Time, Irvington Staff Time	CDBG, HMGP	High

3	Expand upon current and create new public outreach activities. Utilize the jurisdiction's website to advise citizens and visitors of local natural hazard risks, encourage citizen-based mitigation efforts and disaster preparation. Consider creating a "Program for Public Information" (PPI) Committee to assist with educating, distribution, and management. (*PPI is a suggestion under Activity 322 in the CRS Manual). Boost increased exposure and awareness to visitors, tourists, and part-time residents.	▪ Tornado ▪ Severe Weather ▪ Wildfire ▪ Flooding ▪ Coastal Erosion ▪ Landslide ▪ Drought ▪ Heatwave ▪ Earthquake	▪ Education and Outreach	All	Town of Irvington Emergency Management Community Planning	Initiated & Ongoing	Staff Time, NNPDC Staff Time	Irvington, CDBG, FMA, HMGP, EMPG	Medium
4	Seek funding for and implement early warning signals/systems/emergency warning tools for residents with increased attention to vulnerable populations.	▪ Tornado ▪ Severe Weather ▪ Wildfire ▪ Flooding ▪ Coastal Erosion ▪ Landslide ▪ Drought ▪ Heatwave ▪ Earthquake	▪ Planning ▪ Property Protection ▪ Emergency Services	All	Town of Irvington Emergency Management	New	Staff Time, NNPDC Staff Time	Irvington, CDBG, FMA, HMGP	High
5	Seek funding to assess and subsequentially improve stormwater management capabilities.	▪ Flooding	▪ Property Protection ▪ Natural Resources Protection	All	Town of Irvington Floodplain Manager	New	Staff Time, NNPDC Staff Time	Irvington, FMA, HMGP, BRIC	Medium

#	Mitigation Action	Hazard(s) Addressed	Project Type	Applies to Existing or New Structures	Responsible Party(s)	Timeframe	Estimated Cost ($)	Possible Funding Source	Priority
Town of Kilmarnock									
1	Support mitigation projects that conform to the requirements of the HMA program in terms of eligibility for participation and projects.	▪ Tornado ▪ Severe Weather ▪ Wildfire ▪ Flooding ▪ Coastal Erosion ▪ Landslide ▪ Drought ▪ Heatwave ▪ Earthquake	▪ Prevention ▪ Property Protection ▪ Natural Resource Protection ▪ Structural ▪ Emergency Services ▪ Education & Outreach	All	Town of Kilmarnock Building & Zoning NNPDC	Initiated & Ongoing	Staff Time	Kilmarnock, HMGP, FMA, BRIC	Medium
2	Integrate mitigation plan requirements and actions into other appropriate planning mechanisms such as resiliency and comprehensive plans, and capital improvement plans.	▪ Tornado ▪ Severe Weather ▪ Wildfire ▪ Flooding ▪ Coastal Erosion ▪ Landslide ▪ Drought ▪ Heatwave ▪ Earthquake	▪ Planning	All	Town of Kilmarnock Emergency Management Town Administration	Ongoing	NNPDC Staff Time, Kilmarnock Staff Time	CDBG, HMGP, EMPG	High

3	Expand upon current and create new public outreach activities. Utilize the jurisdiction's website to advise citizens and visitors of local natural hazard risks, encourage citizen-based mitigation efforts and disaster preparation. Consider creating a "Program for Public Information" (PPI) Committee to assist with educating, distribution, and management. (*PPI is a suggestion under Activity 322 in the CRS Manual). Boost increased exposure and awareness to visitors, tourists, and part-time residents.	▪ Tornado ▪ Severe Weather ▪ Wildfire ▪ Flooding ▪ Coastal Erosion ▪ Landslide ▪ Drought ▪ Heatwave ▪ Earthquake	▪ Education and Outreach	All	Town of Kilmarnock Town Administration Community Planning	Initiated & Ongoing	Kilmarnock, Staff Time, NNPDC Staff Time	Kilmarnock, CDBG, FMA, HMGP, EMPG	Medium
4	Seek funding for and implement early warning signals/systems/emergency warning tools for residents with increased attention to vulnerable populations.	▪ Tornado ▪ Severe Weather ▪ Wildfire ▪ Flooding ▪ Coastal Erosion ▪ Landslide ▪ Drought ▪ Heatwave ▪ Earthquake	▪ Planning ▪ Property Protection ▪ Emergency Services	All	Town of Kilmarnock Emergency Management	1-5 years	Kilmarnock, Staff Time, NNPDC Staff Time	Kilmarnock, County, CDBG, FMA, HMGP	High
5	Seek funding to assess and subsequentially improve stormwater management capabilities.	▪ Flooding	▪ Property Protection ▪ Natural Resources Protection	All	Town of Kilmarnock Floodplain Manager	1-3 years	Kilmarnock, Staff Time, NNPDC Staff Time	Kilmarnock, County, CDBG, FMA, HMGP	Medium
6	Document and maintain records of elevation data that document lowest floor elevation for new or substantially improved structures.	▪ Flooding	▪ Property Protection ▪ Flooding	All	Town of Kilmarnock Building & Zoning	Ongoing	Staff Time, Projects TBD	HMGP, FMA, BRIC, EMPG	Medium

7	Create open communication, education, and planning opportunities between emergency management and the business sector during severe weather emergencies or evacuations.	▪ Tornado ▪ Severe Weather ▪ Wildfire ▪ Flooding ▪ Coastal Erosion ▪ Landslide ▪ Drought ▪ Heatwave ▪ Earthquake	▪ Education and Outreach	Existing	Town of Kilmarnock Emergency Management Community Planning	1-3 years	Kilmarnock Staff Time	FMA, HMGP, CDBG, EMPG	High

#	Mitigation Action	Hazard(s) Addressed	Project Type	Applies to Existing or New Structures	Responsible Party(s)	Timeframe	Estimated Cost ($)	Possible Funding Source	Priority
Town of White Stone									
1	Support mitigation projects that conform to the requirements of the HMA program in terms of eligibility for participation and projects.	▪ Tornado ▪ Severe Weather ▪ Wildfire ▪ Flooding ▪ Coastal Erosion ▪ Landslide ▪ Drought ▪ Heatwave ▪ Earthquake	▪ Prevention ▪ Property Protection ▪ Natural Resource Protection ▪ Structural ▪ Emergency Services ▪ Education & Outreach	All	Town of White Stone Building & Zoning NNPDC	Initiated & Ongoing	Staff Time	White Stone, HMGP, FMA, BRIC	Medium-High
2	Integrate mitigation plan requirements and actions into other appropriate planning mechanisms such as resiliency and comprehensive plans, and capital improvement plans.	▪ Tornado ▪ Severe Weather ▪ Wildfire ▪ Flooding ▪ Coastal Erosion ▪ Landslide ▪ Drought ▪ Heatwave ▪ Earthquake	▪ Planning	All	Town of White Stone Emergency Management Town Administration	Ongoing	NNPDC Staff Time, White Stone Staff Time	CDBG, HMGP, EMPG	Medium
3	Seek new and continue incorporating hazard mitigation techniques into new community facilities to minimize damages, such as the new wastewater treatment facility and backup electricity, continuing Phases of project.	▪ Flooding	▪ Property Protection ▪ Natural Resource Protection	All	Town of White Stone Town Administration Building & Zoning	Initiated & Ongoing	Staff Time, Projects TBD	HMGP, FMA, BRIC	Medium High
4	Evaluate existing storm water system to determine if it is adequate for existing (or future) flood hazards and plan for upgrades.	▪ Flooding	▪ Property Protection ▪ Natural Resource Protection	All	Town of White Stone Floodplain Manager	1-3 years	$60,000	HMGP, FMA, CDBG	High

5	Expand upon current and create new public outreach activities. Utilize the jurisdiction's website to advise citizens and visitors of local natural hazard risks, encourage citizen-based mitigation efforts and disaster preparation. Consider creating a "Program for Public Information" (PPI) Committee to assist with educating, distribution, and management. (*PPI is a suggestion under Activity 322 in the CRS Manual). Boost increased exposure and awareness to visitors, tourists, and part-time residents.	▪ Tornado ▪ Severe Weather ▪ Wildfire ▪ Flooding ▪ Coastal Erosion ▪ Landslide ▪ Drought ▪ Heatwave ▪ Earthquake	▪ Education and Outreach	All	Town of White Stone Emergency Management Community Planning	1-3 years	White Stone, Staff Time, NNPDC Staff Time	White Stone, CDBG, FMA, HMGP, EMPG	Medium
6	Evaluate exiting storm water system to determine if it is adequate for existing (or future) flood hazards and plan for upgrades.	▪ Tornado ▪ Severe Weather ▪ Wildfire ▪ Flooding ▪ Coastal Erosion ▪ Landslide ▪ Drought ▪ Heatwave ▪ Earthquake	▪ Planning ▪ Property Protection ▪ Emergency Services	All	Town of White Stone Floodplain Manager	1-5 years	$150,000	HMGP CDBG, EMPG	High
7	Seek funding to identify needs and execute needed upgrades to retrofit critical infrastructure buildings with emergency utility backups.	▪ Tornado ▪ Severe Weather ▪ Wildfire ▪ Flooding ▪ Coastal Erosion ▪ Landslide ▪ Drought ▪ Heatwave ▪ Earthquake	▪ Emergency Services	Existing	Town of White Stone Town Administration	1-3 years	Study $75,000 Projects TBD	HMGP, HMGP 5%	High
8	Continue with a ditch maintenance program consisting of routine inspections and subsequent debris	▪ Flooding	▪ Property Protection ▪ Natural Resource Protection	Existing	Town of White Stone Public Works	Ongoing	White Stone Staff, Upgrades TBD	White Stone Budget	High

	removal to reduce the risk of pluvial flooding events.								
9	Research and seek funding for upgrades to communications that would include early warning signals/systems/emergency warning tools for residents with increased attention to vulnerable populations.	▪ Tornado ▪ Severe Weather ▪ Wildfire ▪ Flooding ▪ Coastal Erosion ▪ Landslide ▪ Drought ▪ Heatwave ▪ Earthquake	▪ Emergency Services	All	Town of White Stone Emergency Management	1-3 years	White Stone Staff Time, NNPDC Staff Time	White Stone, CDBG, FMA, HMGP	Medium

#	Mitigation Action	Hazard(s) Addressed	Project Type	Applies to Existing or New Structures	Responsible Party(s)	Timeframe	Estimated Cost ($)	Possible Funding Source	Priority
Northumberland County									
1	Support mitigation projects that conform to the requirements of the HMA program in terms of eligibility for participation and projects.	▪ Tornado ▪ Severe Weather ▪ Wildfire ▪ Flooding ▪ Coastal Erosion ▪ Landslide ▪ Drought ▪ Heatwave ▪ Earthquake	▪ Prevention ▪ Property Protection ▪ Natural Resource Protection ▪ Structural ▪ Emergency Services ▪ Education & Outreach	All	Northumberland County Building & Zoning NNPDC	Initiated & Ongoing	County Staff Time	County, HMGP, FMA, BRIC	High
2	Research and incorporate additional mitigation techniques into community spaces that will further protect flood zones, increase green-space, and improve stormwater drainage capacity, discouraging items such as impermeable surfaces, the disturbance of natural vegetation, or penetration into the floodplains with any structural development not meant to assist in retaining landforms.	▪ Flooding ▪ Coastal Erosion	▪ Property Protection ▪ Natural Resource Protection	All	Northumberland County Building & Zoning Floodplain Manager	Ongoing	Staff Time	County, FMA, HMGP, BRIC, DRC	High
3	Integrate mitigation plan requirements and actions into other appropriate planning mechanisms such as resiliency and comprehensive plans, and capital improvement plans.	▪ Tornado ▪ Severe Weather ▪ Wildfire ▪ Flooding ▪ Coastal Erosion ▪ Landslide ▪ Drought ▪ Heatwave ▪ Earthquake	▪ Planning	All	Northumberland County Emergency Management County Administration	Initiated & Ongoing	NNPDC Staff Time, County Staff Time	CDBG, HMGP, EMPG	Medium

4	Seek funding sources to build nature-based shoreline stabilization strategies. Continue best management practices in shoreline erosion prevention, and mandate that new subdivisions require coordinated shoreline protection plans.	▪ Coastal Erosion	▪ Property Protection ▪ Natural Resources Protection	All	Northumberland County Building & Zoning NNPDC	Initiated & Ongoing	Staff Time	CDBG, DRC, HMGP, USACE, VA DEQ	High
5	Seek new and continue incorporating hazard mitigation techniques into new community facilities to minimize damages, such as the new wastewater treatment facility and backup electricity, continuing Phases of project.	▪ Flooding	▪ Property Protection ▪ Natural Resource Protection	All	Northumberland County Emergency Management Building & Zoning	Initiated & Ongoing	Staff Time, Projects TBD	HMGP, FMA, BRIC	High
6	Consider using fee simple and/or permanent easements to prevent development in the highest priority undeveloped floodplain (and/or wetlands) areas. Use these areas as public open space for passive recreational uses including water access.	▪ Flooding	▪ Prevention ▪ Property Protection ▪ Natural Resources Protection ▪ Structural	All	Northumberland County Building & Zoning Floodplain Manager	Ongoing	Staff Time, Projects TBD	County	High
7	Engage in a wetlands acquisition and /or restoration program with Wetlands Watch and other conservation partners.	▪ Prevention ▪ Flooding ▪ Natural Resources Protection	▪ Property Protection ▪ Natural Resource Protection	All	Northumberland County Floodplain Manager NNPDC	Ongoing	Staff Time, Projects TBD	HMGP, BRIC, DRC, USACE	Low
8	Expand upon current and create new public outreach activities. Utilize the jurisdiction's website to advise citizens and visitors of local natural hazard risks, encourage citizen-based mitigation efforts and disaster preparation. Consider creating a "Program for Public Information" (PPI)	▪ Tornado ▪ Severe Weather ▪ Wildfire ▪ Flooding ▪ Coastal Erosion ▪ Landslide ▪ Drought ▪ Heatwave	▪ Education and Outreach	All	Northumberland County Emergency Management Community Planning	1-3 years	County Staff Time, NNPDC Staff Time	County, CDBG, FMA, HMGP	Medium

	Committee to assist with educating, distribution, and management. (*PPI is a suggestion under Activity 322 in the CRS Manual). Boost increased exposure and awareness to visitors, tourists, and part-time residents.	▪ Earthquake							
9	Encourage waterfront property owners in existing communities to consider community-based multi-parcel shoreline protection strategies before they pursue individual approaches.	▪ Flooding ▪ Coastal Erosion	▪ Property Protection ▪ Natural Resource Protection ▪ Structural	All	Northumberland County Building & Zoning NNPDC	1-5 years	County Staff Time, NNPDC Staff Time	HMGP, DRC	High
10	Work with VDOT to evaluate at-risk roads and implement mitigation measures (e.g., elevation, redesign)	▪ Prevention ▪ Flooding ▪ Structural	▪ Planning	Existing	Northumberland County Public Works	1-3 years	Staff Time, Projects TBD	HMGP, VDOT, CDBG	High
11	Investigate implementation of cumulative damage provision as part of floodplain ordinance.	▪ Flooding	▪ Property Protection	All	Northumberland County Floodplain Manager	Ongoing	County Staff Time	County, HMGP	Low
12	Assist with local floodplain determinations and maintain a record of approved changes to the local floodplain.	▪ Flooding	▪ Prevention ▪ Property Protection ▪ Education and Outreach	All	Northumberland County Floodplain Manager	1-3 years	County Staff Time	County, HMGP	Medium
13	Document and maintain records of elevation data that document lowest floor elevation for new or substantially improved structures.	▪ Flooding	▪ Prevention ▪ Property Protection ▪ Structural	All	Northumberland County Building & Zoning	Ongoing	Staff Time, Projects TBD	HMGP, FMA, BRIC, EMPG	Medium
14	Consider adoption of activities that extend beyond the minimum requirements, including those identified for participation in the Community Rating System, freeboard, prohibition of production or	▪ Flooding	▪ Prevention	All	Northumberland County Emergency Management	Ongoing	Staff Time,	HMGP, EMPG	High

	storage of chemicals in SFHA, prohibition or certain types of structures such as: hospitals, nursing homes, jails, prohibition of certain types of residential housing such as manufactured homes, and finally floodplain ordinances, that prohibit any new residential or non-residential structures in the SFHA.				Building & Zoning Floodplain Manager NNPDC				
15	Seek further improvements to hazard mitigation elements that will enable the community to become eligible for CRS participation.	▪ Tornado ▪ Severe Weather ▪ Wildfire ▪ Flooding ▪ Coastal Erosion ▪ Landslide ▪ Drought ▪ Heatwave ▪ Earthquake	▪ Planning	All	Northumberland County Emergency Management	1-3 years	Staff Time,	HMGP, EMPG	Low
16	Develop a resident emergency preparedness plan that identifies risks and needs, including knowledge of water safety.	▪ Tornado ▪ Severe Weather ▪ Wildfire ▪ Flooding ▪ Coastal Erosion ▪ Landslide ▪ Drought ▪ Heatwave ▪ Earthquake	▪ Planning	All	Northumberland County Emergency Management Community Planning	1-3 years	Staff Time, Consultant	County, EMPG	Medium

#	Mitigation Action	Hazard(s) Addressed	Project Type	Applies to Existing or New Structures	Responsible Party(s)	Timeframe	Estimated Cost ($)	Possible Funding Source	Priority
Richmond County									
1	Support mitigation projects that conform to the requirements of the HMA program in terms of eligibility for participation and projects.	▪ Tornado ▪ Severe Weather ▪ Wildfire ▪ Flooding ▪ Coastal Erosion ▪ Landslide ▪ Drought ▪ Heatwave ▪ Earthquake	▪ Prevention ▪ Property Protection ▪ Natural Resource Protection ▪ Structural ▪ Emergency Services ▪ Education & Outreach	All	Richmond County Building & Zoning NNPDC	Initiated & Ongoing	Staff Time	Richmond County, HMGP	High
2	Integrate mitigation plan requirements and actions into other appropriate planning mechanisms such as resiliency and comprehensive plans, and capital improvement plans.	▪ Tornado ▪ Severe Weather ▪ Wildfire ▪ Flooding ▪ Coastal Erosion ▪ Landslide ▪ Drought ▪ Heatwave ▪ Earthquake	▪ Planning	All	Richmond County Emergency Management County Administration	Initiated & Ongoing	NNPDC Staff Time, County Staff Time	CDBG, HMGP	Medium
3	Continue to seek training opportunities for staff to enhance abilities of current GIS capabilities within the jurisdiction.	▪ Tornado ▪ Severe Weather ▪ Wildfire ▪ Flooding ▪ Coastal Erosion ▪ Landslide ▪ Drought ▪ Heatwave	▪ Planning	Existing	Richmond County Emergency Management GIS Coordinator	Ongoing	County Staff Time	CDBG, HMGP, EMPG	Medium

		▪ Earthquake							
4	Expand upon current and create new public outreach activities. Utilize the jurisdiction's website to advise citizens and visitors of local natural hazard risks, encourage citizen-based mitigation efforts and disaster preparation. Consider creating a "Program for Public Information" (PPI) Committee to assist with educating, distribution, and management. (*PPI is a suggestion under Activity 322 in the CRS Manual). Boost increased exposure and awareness to visitors, tourists, and part-time residents.	▪ Tornado ▪ Severe Weather ▪ Wildfire ▪ Flooding ▪ Coastal Erosion ▪ Landslide ▪ Drought ▪ Heatwave ▪ Earthquake	▪ Education and Outreach	All	Richmond County Emergency Management Community Planning	1-3 years	County Staff Time, NNPDC Staff Time	Richmond County, CDBG, FMA, HMGP	Medium
5	Encourage waterfront property owners in existing communities to consider community-based multi-parcel shoreline protection strategies before they pursue individual approaches.	▪ Flooding ▪ Coastal Erosion	▪ Property Protection ▪ Natural Resource Protection ▪ Structural	All	Richmond County Building & Zoning NNPDC	1-5 years	County Staff Time, NNPDC Staff Time	HMGP, DRC	Medium
6	Develop a resident emergency preparedness plan that identifies risks and needs, including knowledge of water safety.	▪ Tornado ▪ Severe Weather ▪ Wildfire ▪ Flooding ▪ Coastal Erosion ▪ Landslide ▪ Drought ▪ Heatwave ▪ Earthquake	▪ Planning	All	Richmond County Emergency Management	1-3 years	County Staff Time, Consultant	Richmond County, EMPG	Medium
7	Identify funding for non-CIP coastal resilience projects, including priority needs of vulnerable populations.	▪ Coastal Erosion ▪ Flooding	▪ Planning	All	Richmond County	1-3 years	County Staff Time, Consultant	Richmond County, EMPG	Medium

					Emergency Management NNPDC				
8	Document and maintain records of elevation data that document lowest floor elevation for new or substantially improved structures.	▪ Flooding ▪ Coastal Erosion	▪ Prevention ▪ Structural	All	Richmond County Floodplain Manager	Initiated & Ongoing	Staff Time, Projects TBD	HMGP, FMA, BRIC, EMPG	High

#	Mitigation Action	Hazard(s) Addressed	Project Type	Applies to Existing or New Structures	Responsible Party(s)	Timeframe	Estimated Cost ($)	Possible Funding Source	Priority
Town of Warsaw									
1	Support mitigation projects that conform to the requirements of the HMA program in terms of eligibility for participation and projects.	▪ Tornado ▪ Severe Weather ▪ Wildfire ▪ Flooding ▪ Coastal Erosion ▪ Landslide ▪ Drought ▪ Heatwave ▪ Earthquake	▪ Prevention ▪ Property Protection ▪ Natural Resource Protection ▪ Structural ▪ Emergency Services ▪ Education & Outreach	All	Town of Warsaw Building & Zoning NNPDC	Initiated & Ongoing	Town Staff Time	Warsaw, HMGP	High
2	Integrate mitigation plan requirements and actions into other appropriate planning mechanisms such as resiliency and comprehensive plans, and capital improvement plans.	▪ Tornado ▪ Severe Weather ▪ Wildfire ▪ Flooding ▪ Coastal Erosion ▪ Landslide ▪ Drought ▪ Heatwave ▪ Earthquake	▪ Planning	All	Town of Warsaw Emergency Management Town Administration	Initiated & Ongoing	NNPDC Staff Time, Town Staff Time	CDBG, HMGP	Medium

3	Expand upon current and create new public outreach activities. Utilize the jurisdiction's website to advise citizens and visitors of local natural hazard risks, encourage citizen-based mitigation efforts and disaster preparation. Consider creating a "Program for Public Information" (PPI) Committee to assist with educating, distribution, and management. (*PPI is a suggestion under Activity 322 in the CRS Manual). Boost increased exposure and awareness to visitors, tourists, and part-time residents.	▪ Tornado ▪ Severe Weather ▪ Wildfire ▪ Flooding ▪ Coastal Erosion ▪ Landslide ▪ Drought ▪ Heatwave ▪ Earthquake	▪ Education and Outreach	All	Town of Warsaw Emergency Management Community Planning	Ongoing	Town Staff Time, NNPDC Staff Time	Town, CDBG, FMA, HMGP	High
4	Develop a resident emergency preparedness plan that identifies risks and needs, including knowledge of water safety.	▪ Tornado ▪ Severe Weather ▪ Wildfire ▪ Flooding ▪ Coastal Erosion ▪ Landslide ▪ Drought ▪ Heatwave ▪ Earthquake	▪ Planning	All	Town of Warsaw Emergency Management	1-3 years	Town Staff Time, Consultant	Town, EMPG	Medium
5	Seek funding for and implement early warning signals/systems/emergency warning tools for residents (especially vulnerable populations.	▪ Tornado ▪ Severe Weather ▪ Wildfire ▪ Flooding ▪ Coastal Erosion ▪ Landslide ▪ Drought ▪ Heatwave ▪ Earthquake	▪ Prevention ▪ Planning	All	Town of Warsaw Emergency Management	1-3 years	Town Staff Time, NNPDC Staff Time	Town, CDBG, FMA, HMGP	High

#	Mitigation Action	Hazard(s) Addressed	Project Type	Applies to Existing or New Structures	Responsible Party(s)	Timeframe	Estimated Cost ($)	Possible Funding Source	Priority
Westmoreland County									
1	Support mitigation projects that conform to the requirements of the HMA program in terms of eligibility for participation and projects.	▪ Tornado ▪ Severe Weather ▪ Wildfire ▪ Flooding ▪ Coastal Erosion ▪ Landslide ▪ Drought ▪ Heatwave ▪ Earthquake	▪ Prevention ▪ Property Protection ▪ Natural Resource Protection ▪ Structural ▪ Emergency Services ▪ Education & Outreach	All	Westmoreland County Building & Zoning NNPDC	Initiated & Ongoing	County Staff Time	County, HMGP	Medium
2	Research and incorporate additional mitigation techniques into community spaces that will further protect flood zones, increase green-space, and improve stormwater drainage capacity, discouraging items such as impermeable surfaces, the disturbance of natural vegetation, or penetration into the floodplains with any structural development not meant to assist in retaining landforms.	▪ Flood ▪ Coastal Erosion	▪ Prevention ▪ Property Protection ▪ Natural Resource Protection ▪ Structural	New	Westmoreland County Public Works Floodplain Manager	1-3 years	County Staff Time	County, HMGP, BRIC, DRC	High
3	Seek funding sources to build nature-based shoreline stabilization strategies. Continue best management practices in shoreline erosion prevention, and mandate that new subdivisions require coordinated shoreline protection plans with specific attention to the Stratford Hall area erosion and cliff failure issues.	▪ Flood ▪ Coastal Erosion	▪ Property Protection ▪ Natural Resource Protection	All	Westmoreland County Floodplain Manager Building & Zoning	Initiated & Ongoing	County Staff Time	CDBG, DRC, HMGP, USACE, VA DEQ	High

4	Integrate mitigation plan requirements and actions into other appropriate planning mechanisms such as comprehensive and resiliency plans, and capital improvement plans.	▪ Tornado ▪ Severe Weather ▪ Wildfire ▪ Flooding ▪ Coastal Erosion ▪ Landslide ▪ Drought ▪ Heatwave ▪ Earthquake	▪ Planning	All	Westmoreland County Emergency Management County Administration	Initiate & Ongoing	NNPDC Staff Time, County Staff Time	CDBG, HMGP	Medium
5	Continue to upgrade and expand the current GIS capabilities, training, and resources throughout the community.	▪ Tornado ▪ Severe Weather ▪ Wildfire ▪ Flooding ▪ Coastal Erosion ▪ Landslide ▪ Drought ▪ Heatwave ▪ Earthquake	▪ Planning ▪ Emergency Services	Existing	Westmoreland County Emergency Management GIS Coordinator	Initiated & Ongoing	County Staff Time	CDBG	Medium
6	Seek further improvements to hazard mitigation elements that will enable the community to become eligible for CRS participation.	▪ Flooding	▪ Prevention ▪ Emergency Services ▪ Education and Outreach	All	Westmoreland County Emergency Management	Initiated & Ongoing	County Staff Time, NNPDC Staff Time	HMGP	Low
7	Document and maintain records of elevation data that document lowest floor elevation for new or substantially improved structures.	▪ Flooding	▪ Planning ▪ Structural	Both	Westmoreland County Building & Zoning	Initiated & Ongoing	$150,000	CDBG, FMA, HMGP	High

8	Expand upon current and create new public outreach activities. Utilize the jurisdiction's website to advise citizens and visitors of local natural hazard risks, encourage citizen-based mitigation efforts and disaster preparation. Consider creating a "Program for Public Information" (PPI) Committee to assist with educating, distribution, and management. (*PPI is a suggestion under Activity 322 in the CRS Manual). Boost increased exposure and awareness to visitors, tourists, and part-time residents.	▪ Tornado ▪ Severe Weather ▪ Wildfire ▪ Flooding ▪ Coastal Erosion ▪ Landslide ▪ Drought ▪ Heatwave ▪ Earthquake	▪ Education and Outreach	All	Westmoreland County Emergency Management Community Planning	Initiated & Ongoing	County Staff Time, NNPDC Staff Time	County, CDBG, FMA, HMGP	High
9	Consider using fee simple and/or permanent easement to prevent development in the highest priority undeveloped floodplain (and/or wetlands) areas. Use these areas as public open space for passive recreational uses including water access.	▪ Flooding	▪ Planning ▪ Property Protection	All	Westmoreland County County Administration Building & Zoning	Ongoing	County Staff Time, Projects TBD	County	Medium
10	Evaluate built-upon areas within the floodplain or along the high erosion risk shoreline for possible relocation and/or acquisition. Target FEMA's Repetitive Loss Properties	▪ Flooding	▪ Property Protection ▪ Structural	All	Westmoreland County Building & Zoning NNPDC	Ongoing	$85K - $120K	HMGP, FMA	High

11	Develop a resident and visitor emergency preparedness plan that identifies risks and needs, including knowledge of water safety.	▪ Tornado ▪ Severe Weather ▪ Wildfire ▪ Flooding ▪ Coastal Erosion ▪ Landslide ▪ Drought ▪ Heatwave ▪ Earthquake	▪ Prevention ▪ Planning ▪ Education and Outreach	All	Westmoreland County Emergency Management	1-3 years	$85,000	HMGP, EMPG	Medium
16	Seek education and funding to initiate a program that will organize investigations and risk assessments that will utilize FEMA's risk prioritization methodology to define the HHPDs within the Region.	▪ Flooding	▪ Prevention ▪ Property Protection ▪ Natural Resource Protection ▪ Structural	All	Westmoreland County Emergency Management Floodplain Administrator	New	Staff Time	Existing Budget	High

#	Mitigation Action	Hazard(s) Addressed	Project Type	Applies to Existing or New Structures	Responsible Party(s)	Timeframe	Estimated Cost ($)	Possible Funding Source	Priority
Town of Colonial Beach									
1	Support mitigation projects that conform to the requirements of the HMA program in terms of eligibility for participation and projects.	▪ Tornado ▪ Severe Weather ▪ Wildfire ▪ Flooding ▪ Coastal Erosion ▪ Landslide ▪ Drought ▪ Heatwave ▪ Earthquake	▪ Prevention ▪ Property Protection ▪ Natural Resource Protection ▪ Structural ▪ Emergency Services ▪ Education & Outreach	All	Town of Colonial Beach Building & Zoning NNPDC	Initiated & Ongoing	Town Staff Time	Town, HMGP	High
2	Integrate mitigation plan requirements and actions into other appropriate planning mechanisms such as resiliency and comprehensive plans, and capital improvement plans.	▪ Tornado ▪ Severe Weather ▪ Wildfire ▪ Flooding ▪ Coastal Erosion ▪ Landslide ▪ Drought ▪ Heatwave ▪ Earthquake	▪ Planning	All	Town of Colonial Beach Emergency Management Town Administration	Initiated & Ongoing	NNPDC Staff Time, Town Staff Time	CDBG, HMGP	Medium

3	Expand upon current and create new public outreach activities. Utilize the jurisdiction's website to advise citizens and visitors of local natural hazard risks, encourage citizen-based mitigation efforts and disaster preparation. Consider creating a "Program for Public Information" (PPI) Committee to assist with educating, distribution, and management. (*PPI is a suggestion under Activity 322 in the CRS Manual). Boost increased exposure and awareness to visitors, tourists, and part-time residents.	▪ Tornado ▪ Severe Weather ▪ Wildfire ▪ Flooding ▪ Coastal Erosion ▪ Landslide ▪ Drought ▪ Heatwave ▪ Earthquake	▪ Education and Outreach	All	Town of Colonial Beach Emergency Management Community Planning	Ongoing	Town Staff Time, NNPDC Staff Time	Town, CDBG, FMA, HMGP	High
4	Develop a resident and visitor emergency preparedness plan that identifies risks and needs, including knowledge of water safety.	▪ Tornado ▪ Severe Weather ▪ Wildfire ▪ Flooding ▪ Coastal Erosion ▪ Landslide ▪ Drought ▪ Heatwave ▪ Earthquake	▪ Planning	All	Town of Colonial Beach Emergency Management	1-3 years	$85,000	HMGP, EMPG	Medium
5	Seek funding for and implement early warning signals/systems/emergency warning tools for residents (especially vulnerable populations.)	▪ Tornado ▪ Severe Weather ▪ Wildfire ▪ Flooding ▪ Coastal Erosion ▪ Landslide ▪ Drought ▪ Heatwave ▪ Earthquake	▪ Prevention ▪ Planning	All	Town of Colonial Beach Emergency Management	1-3 years	Town Staff Time, NNPDC Staff Time	Town, CDBG, FMA, HMGP	High

6	Expand upon the stormwater management program consisting of routine inspections and subsequent debris removal and consider additions of culverts where applicable.	▪ Flooding ▪ Natural Resources	▪ Prevention ▪ Planning	Existing	Town of Colonial Beach Public Works	Ongoing	Town Staff, Projects TBD	HMGP, FMA CDBG	Medium
7	Identify a program of corrective actions to improve shoreline preservation and protection measures.	▪ Coastal Erosion ▪ Flooding	▪ Natural Resource Protection	Existing	Town of Colonial Beach Floodplain Manager NNPDC	1-3 years	Town Staff, Projects TBD	HMGP, FMA, DRC, USACE	High
8	Work with VDOT to establish flood level markers along bridges and other structures to indicate the rise of water levels along creeks and rivers in potential flood prone areas.	▪ Coastal Erosion ▪ Flooding	▪ Prevention ▪ Education and Outreach	Existing	Town of Colonial Beach Public Works	Ongoing	$50,000	HMGP VDOT	Low
9	Document and maintain records of elevation data that document lowest floor elevation for new or substantially improved structures.	▪ Coastal Erosion ▪ Flooding	▪ Prevention	All	Town of Colonial Beach Building & Zoning	Ongoing	$150,000	CDBG, FMA, HMGP	High
10	Consider adoption of activities that extend beyond the minimum requirements, including those identified for participation in the Community Rating System, freeboard, prohibition of production or storage of chemicals in SFHA, prohibition or certain types of structures such as: hospitals, nursing homes, jails, prohibition of certain types of residential housing such as manufactured homes, and finally floodplain ordinances, that prohibit	▪ Coastal Erosion ▪ Flooding	▪ Prevention ▪ Planning	All	Town of Colonial Beach Building & Zoning	Ongoing	Town Staff	HMGP	Low

	any new residential or non-residential structures in the SFHA.								

#	Mitigation Action	Hazard(s) Addressed	Project Type	Applies to Existing or New Structures	Responsible Party(s)	Timeframe	Estimated Cost ($)	Possible Funding Source	Priority
Town of Montross									
1	Support mitigation projects that conform to the requirements of the HMA program in terms of eligibility for participation and projects.	▪ Tornado ▪ Severe Weather ▪ Wildfire ▪ Flooding ▪ Coastal Erosion ▪ Landslide ▪ Drought ▪ Heatwave ▪ Earthquake	▪ Prevention ▪ Property Protection ▪ Natural Resource Protection ▪ Structural ▪ Emergency Services ▪ Education & Outreach	All	Town of Montross Building & Zoning NNPDC	Initiated & Ongoing	Town Staff Time	Town, HMGP	High
2	Integrate mitigation plan requirements and actions into other appropriate planning mechanisms such as resiliency and comprehensive plans, and capital improvement plans.	▪ Tornado ▪ Severe Weather ▪ Wildfire ▪ Flooding ▪ Coastal Erosion ▪ Landslide ▪ Drought ▪ Heatwave ▪ Earthquake	▪ Planning	All	Town of Montross Emergency Management Town Administration	Initiated & Ongoing	NNPDC Staff Time, Town Staff Time	CDBG, HMGP	Medium

3	Expand upon current and create new public outreach activities. Utilize the jurisdiction's website to advise citizens and visitors of local natural hazard risks, encourage citizen-based mitigation efforts and disaster preparation. Consider creating a "Program for Public Information" (PPI) Committee to assist with educating, distribution, and management. (*PPI is a suggestion under Activity 322 in the CRS Manual). Boost increased exposure and awareness to visitors, tourists, and part-time residents.	▪ Tornado ▪ Severe Weather ▪ Wildfire ▪ Flooding ▪ Coastal Erosion ▪ Landslide ▪ Drought ▪ Heatwave ▪ Earthquake	▪ Education and Outreach	All	Town of Montross Emergency Management Community Planning	Ongoing	Town Staff Time, NNPDC Staff Time	Town, CDBG, FMA, HMGP	High
4	Develop a resident emergency preparedness plan that identifies risks and needs, including knowledge of water safety.	▪ Tornado ▪ Severe Weather ▪ Wildfire ▪ Flooding ▪ Coastal Erosion ▪ Landslide ▪ Drought ▪ Heatwave ▪ Earthquake	▪ Planning	All	Town of Montross Emergency Management	1-3 years	Town Staff Time, Consultant	Town, EMPG	Medium
5	Seek funding for and implement early warning signals/systems/emergency warning tools for residents (especially vulnerable populations.	▪ Tornado ▪ Severe Weather ▪ Wildfire ▪ Flooding ▪ Coastal Erosion ▪ Landslide ▪ Drought ▪ Heatwave ▪ Earthquake	▪ Prevention ▪ Planning	All	Town of Montross Emergency Management	1-3 years	Town Staff Time, NNPDC Staff Time	Town, CDBG, FMA, HMGP	High

6	Consider adoption of activities that extend beyond the minimum requirements, including those identified for participation in the Community Rating System, freeboard, prohibition of production or storage of chemicals in SFHA, prohibition or certain types of structures such as: hospitals, nursing homes, jails, prohibition of certain types of residential housing such as manufactured homes, and finally floodplain ordinances, that prohibit any new residential or non-residential structures in the SFHA.	▪ Flooding	▪ Prevention ▪ Planning	All	Town of Montross Emergency Management Building & Zoning Floodplain Manager	Ongoing	Town Staff	HMGP	Medium

9.4 Flood Mitigation Projects

Across the region, the participating jurisdictions strive to mitigate the effects of flooding. Counties and towns enforce floodplain regulations, regulate flood zone development, and create stormwater management plans and systems.

In cooperation with the Virginia Department of Emergency Management (VDEM), the Northern Neck Planning District Commission works to assist citizens through the FEMA application process for properties that qualify for a home-elevation grant. Qualification for (HMGP) depends on the history and cost of prior claims made by the homeowner. Depending on the grant, the property can be elevated or demolished and replaced with new construction[1].

Living Shorelines is a shoreline management system designed to protect or restore a natural shoreline ecosystem from powerful storms, accelerated sea level rise, and landward erosion using natural and, sometimes, human-caused elements. Throughout the Northern Neck Region and coastal plain, homes and businesses are experiencing increased erosion from winds, waves, currents, tides, and recreational activities, making homes and businesses more vulnerable. There are two categories for living shorelines – Non-structural and Combined structural/non-structural. Each utilizes vegetation to protect the shoreline from erosion, flooding, and storm surges. Depending on the scope of the living shoreline, landowners can apply for a free "*Living Shoreline Group 1 General Permit"* through the Virginia Marine Resources Commission and the local Wetlands Board[2].

9.5 Prioritization and Implementation of Mitigation Actions

The preceding sections identify specific actions to achieve identified goals, an appropriate responsible party for each action, and a schedule for accomplishment and suggested funding sources. These tables also indicate an initial prioritization of the actions.

9.5.1 Prioritization

The Hazard Mitigation Steering Committee and Working Group used the STAPLE/E (*Social, Technical, Administrative, Political, Legal, Economic, and Environmental*) criteria to select and prioritize the most appropriate mitigation and adaptation alternatives found in Table 9-5. This methodology requires that social, technical, administrative, political, legal, economic, and environmental elements be considered when reviewing potential actions for Northern Neck Region jurisdictions to undertake. This process was used to help ensure that the most equitable and feasible actions would be undertaken based on each jurisdiction's capabilities.

[1] https://www.northernneck.us/flood-hazard-mitigation/
[2] https://www.northernneck.us/living-shorelines-initiative/

Table 9-5: STAPLE/E Methodology

STAPLE/ E	Considerations
Social	▪ is the proposed action socially acceptable to the community(s)? ▪ Are there equity issues involved that would mean that one segment of a community is treated unfairly? ▪ Will the action cause social disruption?
Technical	▪ Will the proposed action work? ▪ Will it create more problems than it solves? ▪ Does it solve a problem or only a symptom? ▪ Is it the most useful action considering other community(s) goals?
Administrative	▪ Can the community(s) implement the action? ▪ Is there someone to coordinate and lead the effort? ▪ Is there sufficient funding, staff, and technical support available? ▪ Are there ongoing administrative requirements that need to be met?
Political	▪ Is the action politically acceptable? ▪ Is there public support both to implement and to maintain the project?
Legal	▪ Is the community(s) authorized to implement the proposed action? ▪ Is there a clear legal basis or precedent for this activity? ▪ Are there legal side effects? ▪ Could the activity be construed as a taking? ▪ Is the proposed action allowed by a comprehensive plan, or must a comprehensive plan be amended to allow the proposed action ▪ Will the community(s) be liable for action or lack of action? ▪ Will the activity be challenged?
Economic	▪ What are the costs and benefits of this action? ▪ Do the benefits exceed the costs? ▪ Are initial, maintenance, and administrative costs considered? ▪ Has funding been secured for the proposed action? If not, what are the potential funding sources (public, non-profit, and private)? ▪ How will this action affect the fiscal capability of the community(s)? ▪ What burden will this action place on the tax base or local economy? ▪ What are the budget and revenue effects of this activity? ▪ Does the action contribute to other community goals, such as capital improvements or economic development?
Environmental	▪ How will the action affect the environment? ▪ Will the action need environmental regulatory approvals? ▪ Will it meet local and state regulatory requirements? ▪ Are endangered or threatened species likely to be affected?

This method was used by NNPDC and jurisdictions to weigh the various criteria for each of the identified actions and objectives including the relative cost-effectiveness as part of the "Economic" criteria. A priority level was assigned to each project based on the potential for the projects to be initiated and/or completed given the existing and potential funding, staff availability, and time; this prioritization method was selected because the HMSC and HMWG believed it would foster a realistic expectation of what could be accomplished in the next five years. A priority level of **High** indicates that these projects are currently in progress or are planned to be initiated within 1 year, have staff available, and have designated funds for completion or require minimal funds to complete. A priority level of **Medium** indicates that the community is

likely to receive funding for these particular projects, has limited staff, funding options/opportunities will be sought, and if funding is received, the projects could be initiated/completed within 1-3 years. Lastly, a priority level of **Low** indicates that staff will have to be sought to accomplish, that these actions will be initiated and/or completed only if outside funding becomes available, and that the projects would take at least 3-5 years to initiate/complete. The resulting priority rankings are demonstrated in Table 9-3 and Table 9-4.

Actions for each jurisdiction were pulled from the 2017 plan and reviewed by planning personnel and jurisdiction officials. Then individual jurisdiction interviews were held and each community updated their mitigation actions, as did the Northern Neck Planning District Commission, with the assistance of the Olson Group. Some actions were kept and re-worded for updating purposes, while others were removed as completed or not applicable, and new ones were created to address new items presented by the jurisdictions and the RAFT reports. Mitigation action status are defined as New, Initiated and Ongoing, and Ongoing. **New** indicates an action that was added to the 2023 plan and has not been initiated. **Initiated and Ongoing** refers to an action in which tasks for all or part of the action have begun but not completed, and the progress on the task continues to be pursued. **Ongoing** refers to mitigation actions that were previously initiated and at this update continue to see progress being made. Appendix E notes all changes between the 2017 plan to the 2023 plan.

9.5.2 Implementation

The 2023 Northern Neck Regional Hazard Mitigation Plan outlines many mitigations action identified as "high" priority. The decision to address which actions first presents an ongoing challenge. Each participating jurisdiction is responsible for integrating mitigation actions into various planning documents, processes, and budgets under locally administered governing policies and procedures. Each action is assigned to a responsible department or departments that will work together to implement designated actions.

Funding is a crucial component of implementing mitigation actions. While several counties in the region have been actively pursuing and implementing mitigation projects funded by FEMA/VDEM Hazard Mitigation Assistance programs, low or no-cost high-priority strategies broaden the region's mitigation and long-term resiliency approach. The Planning District Commission and participating jurisdictions will continue to pursue grant funding to implement more challenging actions. The NNPDC has been successful at obtaining funding for elevations in the region. Over the next five-year period the NNPDC plans to assist participating jurisdictions in seeking funds via programs such as HMGP or BRIC to seek studies and apply improvements to the dams in the Region.

Applying the "snowball" method is another implementation approach that can be effective in prioritizing mitigation actions. Publicizing a successful project can build momentum to implement other mitigation actions.

It is essential to the long-term implementation of the plan update that the underlying principles of the hazard mitigation plan update are incorporated into other community plans and mechanisms, such as:

- Comprehensive plans
- Development ordinances (Zoning Ordinance, Subdivision Ordinance, or Building Code)
- Resiliency planning
- Disaster recovery planning

- Economic development plans
- Natural resource protection and shoreline protection plans
- Capital Improvement Program (CIP) budgeting

Section 3.0 Community Profile, provides insight into the current comprehensive plans for each community. Communities should work to ensure that the appropriate information from this plan is incorporated into the next update of their comprehensive plan. Data from the hazard identification and risk assessment, mitigation goals, and strategies can be directly included as a complete plan element. Projects that require significant investments, such as at-risk property acquisition or infrastructure hardening, are candidates for inclusion in capital improvement plans. Hazard vulnerability analysis can be incorporated into local emergency operations plans, debris management, coastal protection, and disaster recovery plans. Floodplain management data and mitigation actions can leverage Community Rating System (CRS) program participation. Mitigation is most successful when it is included in the day-to-day functions and priorities of the government. A constant network effort accomplishes integration, identifies, and highlights multi-objective benefits to each program, the communities, and their constituents. This effort is achieved through continuous communication, messaging, monitoring agendas, attending meetings, and sending memos

Simultaneous with these efforts, it will be necessary to constantly monitor funding opportunities that can be used to implement high-priority, high-cost mitigation actions. Funding opportunities that can be monitored include special pre- and post-disaster funds, special district budgeted funds, state or federally earmarked funds, and grant programs that can serve or support multi-objective applications.

With adoption of the 2023 plan update, the Northern Neck Regional communities commit to:

- Pursuing the implementation of the high-priority, low/no-cost recommended actions.
- Keeping the concept of mitigation in the forefront of community decision-making by identifying and stressing the recommendations of the Hazard Mitigation Plan when other community goals, plans and activities are discussed and decided upon.
- Maintaining a constant monitoring of multi-objective, cost-share opportunities to assist the participating communities in implementing the recommended actions of this plan for which no current regular funding or support exists.
- Incorporate hazard risk information, and priority mitigation actions into appropriate local initiatives and programs through collaborative interaction between all related community departments and staff; and
- Evaluating and assessing regional mitigation plan goal and local jurisdiction action effectiveness to reduce hazard risk exposure.

In addition, the communities of the Northern Neck Region remain committed to the NFIP. They will continue to enforce floodplain regulations and undertake other actions to comply with the program, such as continued flood hazard risk evaluation, participation in Community Assistance Visits (CAVs) with the Commonwealth of Virginia NFIP staff, and education and outreach activities directed at flood-prone residents and businesses.

Section 10
Plan Monitoring and Maintenance

Contents of this Section

10.1 44 CFR Requirement for Plan Monitoring and Maintenance

Requirement §201.6(c) (4) (i): *[The plan maintenance process **shall** include a] section describing the method and schedule of monitoring, evaluating, and updating the mitigation plan within a five-year cycle*

Requirement §201.6(c)(4)(ii): *[The plan **shall** include a] process by which local governments incorporate the requirements of the mitigation plan into other planning mechanisms such as comprehensive or capital improvement plans, when appropriate.*

Requirement §201.6(c) (4) (iii): *[The plan maintenance process **shall** include a] discussion on how the community will continue public participation in the plan maintenance process.*

10.2 Method for Monitoring the Plan

The Northern Neck Regional Hazard Mitigation Plan (the Plan) will be monitored by the Northern Neck Planning District Commission (NNPDC) for several related purposes:

- Maintain and update of hazard and risk information.
- Ensure that mitigation projects and actions reflect the priorities of jurisdictions that comprise the Northern Neck Region PDC.
- To ensure compliance with Federal Emergency Management Agency (FEMA) and the Commonwealth of Virginia requirements for plan maintenance and maintain the regions jurisdictions eligibility for federal disaster assistance and mitigation grants.

The Northern Neck Planning District Commission Executive Director and staff will continuously monitor the plan with respect to the purposes noted above, according to the schedule described in Section 10.3, and with respect to the update triggers noted in Section 10.5 below.

Specifically, monitoring activities will consist of:

- Soliciting and reviewing reports from participating jurisdictions regarding status of implementation of action items from the Plan. Status reports will indicate if projects have been:
  - Scoped and/or documented for FEMA grant applications
  - Submitted for FEMA funding programs
  - Approved (or denied approval) for FEMA funding

- Documented for funding by other means (e.g., jurisdictional capital improvement plans)
- Funded (or not approved for funding) by other means
- Under construction
- Projects completed
- (For completed projects only) Subject to hazard conditions such that avoided losses can be documented.

- Tracking progress of sources of improved or revised data for use in subsequent Plan updates on an annual (at a minimum) basis.
- Preparing a report of the status of implementation of action items from the Plan and the availability of improved or revised data. The report will include recommendations to the Hazard Mitigation Working Group regarding the need and/or advantages of undertaking updates to all or part of the Plan prior to the five-year required update (see Section 10.4).

10.3 Schedules for Monitoring the Plan

Informal Plan monitoring activities will be ongoing through:

- Annual progress reports from each jurisdiction on Mitigation Action Plan
- An annual review by the Steering Committee
- Annual updates submitted to VDEM and FEMA Region III

Timing of annual reports may coincide with either the anniversary of the approval date or any other date chosen by the committee in consultation with VDEM.

In addition to the scheduled reports, the Northern Neck PDC will convene meetings after damage-causing natural hazard events to review the effects of such events. Based on those effects, adjustments to the mitigation priorities identified in Section 9 may be made or additional event-specific actions identified.

10.4 Method and Schedule for Maintaining and Updating the Plan

Comprehensive evaluation of and updates to this Plan will be undertaken on a five-year cycle (at a minimum). This Plan must undergo a formal FEMA-compliant update process five years from the adoption date of the first jurisdiction to formally adopt the plan. The Working Group Committee will be responsible for setting annual measures of success and a five-year measure of success for each strategy (Table 10-1: Northern Neck Regional Hazard Mitigation Plan Update Maintenance Schedule). These indicators will be used to measure the progress and success of implementation of the mitigation plan during the 2027 update process. The Working Group Committee will be able to use this information to determine if corrective action is needed or if the action should be continued or discontinued. In addition, the Working Group Committee should review the composition of the committee annually and add members if needed.

In evaluating the plan, the Working Group Committee will assess:

- The goals and objectives addressed in the current plan and any expected conditions
- The nature, magnitude, and/or types of risk present in the region and assess if
- those risks have changed
- The current resources that are required and appropriate for implementing the plan
- Issues with implementation, (ex. technical, political, legal, or coordinating with state and federal agencies)
- The outcome of mitigation strategies, and evaluate their success

- The agencies and partners and their level of participation as originally proposed
- The Mitigation Advisory Committee will determine at the annual meeting if an update of the plan is needed. Factors to consider when determining if an update is necessary include:
    - Lessened vulnerability because of implementing recommended actions,
    - Increased vulnerability because of failed or ineffective mitigation actions, and/or,
    - Increased vulnerability because of new development (and/or annexation).
    - New state/federal laws, policies, or programs
    - Changes in resource availability

Ongoing public outreach will continue, and public participation will be encouraged through available web postings, social media and press releases to local media outlets, primarily weekly community newspapers and radio stations. As with the previous plan, the Local Emergency Planning Committee (serving as the Working Group Committee) shall be charged with maintaining public outreach through reporting back to government officials.

Table 10-1: Northern Neck Regional Hazard Mitigation Plan Update Maintenance Schedule

Timeframe	Activity	Leadership
2023	Jurisdictions Adoption	Local jurisdictions; Northern Neck PDC submittal to FEMA
2024	Annual implementation review	WORKING GROUP COMMITTEE/LEPC
2025	Annual implementation review	WORKING GROUP COMMITTEE/LEPC
2026	Annual implementation review; seek FEMA HMA funding for 2028 plan update	WORKING GROUP COMMITTEE/LEPC
2027	Annual implementation review initiates 2028 Plan update process;	WORKING GROUP COMMITTEE/LEPC
2028	Continue 2028 Plan update process	WORKING GROUP COMMITTEE/LEPC

10.5 Circumstances that will Initiate Plan Review and Updates

A major event, such as a Presidentially declared disaster, may trigger a need to review the plan. If such an event occurs in the Northern Neck Region, the Working Group Committee will coordinate to determine how best to review and update the plan. The updating of the plan will be through written changes and submissions, as the Northern Neck communities and Working Group Committee deem appropriate and necessary. Major changes to the plan will be submitted to FEMA Region III via the State (VDEM).

Public notice will be given, and public participation will be invited, at a minimum, through available web postings and press releases to the local media outlets, primarily newspapers and radio stations. In addition, an annual event will be held to publicize progress on implementing the mitigation plan. This event could be timed to coincide with the anniversary of a significant event or annual awareness event (i.e.,

Hurricane Preparedness Week). The circumstances or conditions under which the PDC will initiate Plan reviews and updates are listed but not limited to:

- On the recommendation of the NNPDC Executive Director, at any time
- At approximately the six-month anniversary of the initial Plan adoption, and every six months thereafter
- After natural hazard events that appear to significantly change the apparent risk to the region's assets, operations, and/or constituents

10.6 Other Local Planning Mechanisms

The PDC has no land use planning and zoning authority, so it has few opportunities to incorporate this Plan into other local mechanisms, such as zoning and subdivision ordinances or master plans. However, this Plan will be included, to the extent possible, in the regional jurisdiction's comprehensive planning and capital improvement programs as opportunities occur.

Participating jurisdictions in this Plan will work to incorporate the goals of this Plan into the next update of relevant plans and regulations, including comprehensive plans, zoning codes, and capital improvement plans. Table 10-2: Updates to Relevant Plans and Documents show dates of upcoming jurisdiction updates to these plans and documents. Jurisdictions are not empowered to make alterations or improvements to the state's building code or the Uniform Construction Code.

Table 10-2: Updates to Relevant Plans and Documents

Plan or Document	Next Update
Lancaster County Comprehensive Plan	Scheduled adoption November 2022
Lancaster County Zoning	As needed
Lancaster County Capital Improvement Plan	Yearly
Town of Irvington Comprehensive Plan	In progress at time of this update
Town of Irvington Zoning	As needed
Town of Irvington Capital Improvement Plan	N/A
Town of Kilmarnock Comprehensive Plan	Not currently scheduled
Town of Kilmarnock Zoning	As needed
Town of Kilmarnock Capital Improvement Plan	Yearly
Town of White Stone Comprehensive Plan	Not currently scheduled
Town of White Stone Zoning	As needed
Town of White Stone Capital Improvement Plan	Yearly
Northumberland County Comprehensive Plan	Not currently scheduled
Northumberland County Zoning	As needed
Northumberland County Capital Improvement Plan	Yearly
Richmond County Comprehensive Plan	Scheduled adoption November 2022
Richmond County Zoning	As needed
Richmond County Capital Improvement Plan	Yearly
Town of Warsaw Comprehensive Plan	In progress at time of this plan
Town of Warsaw Zoning	As needed
Town of Warsaw Capital Improvement Plan	Yearly
Westmoreland County Comprehensive Plan	Not currently scheduled
Westmoreland County Zoning	As needed
Westmoreland County Capital Improvement Plan	Yearly
Town of Colonial Beach Comprehensive Plan	Not currently scheduled
Town of Colonial Beach Zoning	As needed
Town of Colonial Beach Capital Improvement Plan	Yearly
Town of Montross Comprehensive Plan	Not currently scheduled
Town of Montross Zoning	As needed
Town of Montross Capital Improvement Plan	N/A

10.7 Continued Public Involvement

As noted above, this Plan will be evaluated and updated periodically and when certain triggering events occur. The NNPDC will utilize public notices and a centralized website to include the public in the update process. In addition, the NNPDC will undertake public outreach and awareness activities as outlined in the Mitigation Action Plan that will include continuing updates on the progress of implementing the Plan and future updates.

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Appendix A
Acronyms

ABFE: Advisory Base Flood Elevation
AICP: American Institute of Certified Planners
ASCE: American Society of Civil Engineers
BCA: Benefit-Cost Analysis
BFE: Base Flood Elevation
CAV: Community Assessments Visit
CCRFR: Commonwealth Center for Recurrent Flood Resiliency
CFR: Code of Federal Regulation
CIP: Capital Improvement Program
CMP: Comprehensive Management Plan
COOP: Continuity of Operations Plan
COVID-19: Coronavirus Disease of 2019
CPRI: Calculated Priority Risk Index
CRS: Community Rating System
CZM: Coastal Zone Management
DC: District of Columbia
DCR: Department of Conservation and Recreation
DELMARVA: Delaware Maryland and Virginia Peninsula
DEQ: Department of Environmental Quality
DFIRM: Digital Flood Insurance Rate Map
DLUR: Division of Land Use Regulation
DMA 2000: Disaster Mitigation Act of 2000
DMTF: Drought Monitoring Task Force
EF-Scale: Enhanced Fujita Scale
EMS: Emergency Medical Services
EOP: Emergency Operations Plan
EPA: United States Environmental Protection Agency
EPCRA: Emergency Planning and Community Right-to-know Act
ERNS: Emergency Response Notification System
ESF: Emergency Support Function

FEMA:	Federal Emergency Management Agency
FHBM:	Flood Hazard Boundary Map
FIRM:	Flood Insurance Rate Map
FIS:	Flood Insurance Study
FMA:	Flood Mitigation Assistance Grant Program
F-Scale:	Fujita Tornado Scale
GIS:	Geographic Information System
HAZUS:	Hazards US
HIRA:	Hazard Identification and Risk Assessment
HMA:	Hazard Mitigation Assistance
HMGP:	Hazard Mitigation Grant Program
HMP:	Hazard Mitigation Plan
HMSC:	Hazard Mitigation Steering Committee
HMWG:	Hazard Mitigation Working Group
IBC:	International Building Code
IRC:	International Residential Code
LEPC:	Local Emergency Planning Committee
LWCF:	Land and Water Conservation Fund
MLLW:	Mean Lower Low Water
NCDC:	National Climatic Data Center
NCEI:	National Center for Environmental Information
NDSP:	National Dam Safety Program
NFIP:	National Flood Insurance Program
NHC:	National Hurricane Center
NNEC:	Northern Neck Electric Cooperative
NNPDC:	Northern Neck Planning District Commission
NOAA:	National Oceanic Atmospheric Administration
NPS:	National Park Service
NRI:	National Risk Index
NWS:	National Weather Service
OEM:	Office of Emergency Management
OGL:	Olson Group, LTD
PA:	Public Assistance Grant Program
PDC:	Planning District Commission
PGA:	Peak Ground Acceleration

RAFT: Resiliency Adaptation Feasibility Tool

RCRA: Resource Conservation and Recovery Act

RFC: Repetitive Flood Claims Grant Program

RLP: Repetitive Loss Property

SARA: Superfund Amendments and Reauthorization Act

SF: Square Feet

SFHA: Special Flood Hazard Area

SHMP: State Hazard Mitigation Plan

SHMPU: State Hazard Mitigation Plan Update

SOE: State of Emergency

SRLP: Severe Repetitive Loss Property

STAPLEE: Social, Technical, Administrative, Political, Legal, Economic, and Environmental

TCPA: Toxic Catastrophe Prevention Act

TIP: Transportation Improvement Program

TRI: Toxic Release Inventory

TSD: Treatment Storage Disposal

TTF: Transportation Trust Fund

UASI: Urban Area Security Initiative

UCC: Uniform Construction Code

USACE: United States Army Corp of Engineers

USCA: United States Census of Agriculture

USDA: United States Department of Agriculture

USDOT: United States Department of Transportation

USGS: United States Geologic Survey

VDEM: Virginia Department of Emergency Management

VDOF: Virginia Department of Fire Programs

VDOT: Virginia Department of Transportation

VDSFPM: Virgnia Dam Safety Floodplain Management

VFRIS: Virginia Flood Risk Information System

VUSBC: Virginia Uniform Statewide Building Code

WIP: Watershed Implementation Plan

Appendix B
Sources

B.1 Sources for Introduction (Section 2)

- United States Code of Federal Regulations – Title 44 – Emergency Management and Assistance
  - 44 CFR 201.6 Local Mitigation Plan
- 2017 Northern Neck Regional Hazard Mitigation Plan
- Robert T. Stafford Disaster Relief and Emergency Assistance Act, P.L. 93288
- Commonwealth of Virginia Hazard Mitigation Plan
- FEMA Hazard Mitigation Grants Program Guidance: https://www.fema.gov/grants/mitigation/hazard-mitigation-assistance-guidance

B.2 Sources for Community Profile (Section 3)

- United States
- Virginia Water Resources Research Center: http://www.virginiawaterradio.org/
- Jurisdictional Comprehensive Plans
  - Lancaster County
  - Town of Irvington
  - Town of Kilmarnock
  - Town of White Stone
  - Northumberland County
  - Richmond County
  - Town of Warsaw
  - Westmoreland County
  - Town of Colonial Beach
  - Town of Montross
- Resiliency Adaptation Feasibility Tool Reports
- The Virginia Department of Conservation and Recreation: VA's Major watersheds: https://www.dcr.virginia.gov/soil-and-water/wsheds
- United States Geological Survey: https://www.usgs.gov/products/data
- The Chesapeake Bay Program: https://www.chesapeakebay.net/state/population
- United States Census Bureau: 2020 American Community Survey & Decennial Census
- University of Virginia Weldon Cooper Center, Demographics Research Group, 202: Virginia Population Projections
- Virginia Employment Commission, Economic Information & Analytics, Local Area Unemployment Statistics; Community Profile
- Virginia Economic Development Partnership: https://www.chesapeakebay.net/state/population
- 2017 United States Census of Agriculture

B.3 Sources for Adoption and Approval (Section 4)

- Code of Virginia, Article VII: Local Government of the Constitution of Virginia
- 1968 Virginia Area Development Act and modified by the Regional Cooperation Act, 21
- Disaster Mitigation Act of 2000 (DMA 2000)

B.4 Sources for Planning Process (Section 5)

- FEMA 386: Local Mitigation Planning Guide

B.5 Sources for Hazard Identification, Profiling, and Ranking (Section 6)

- NOAA NCEI Storm Events Database
- FEMA National Risk Index Community Reports
- Virginia Department of Fire Programs Fire Incident Database
- HAZUS
- USGS Earthquake Database
- FEMA Declared Disasters Database: https://www.fema.gov/disaster/declarations
- National Weather Service: https://www.weather.gov/
- NOAA and News Leader: Tornado Archive: https://data.newsleader.com/tornado-archive/
- Unites States Army Corp of Engineers: *The North Atlantic Coast Comprehensive Study*
- Commonwealth Center for Recurrent Flooding Resiliency: *The Future Sea Level and Recurrent Flooding Report for Coastal Virginia*
- Virginia Department of Conservation and Recreation ArcGIS Flood Layers
- National Park Service (NPS)*: Wildfire Causes and Evaluations*
- National Wildfire Coordinating Group: Wildland Urban Interface Wildfire Mitigation Desk Reference Guide
- VDOF ArcGIS: Wildfire Risk Map Layer: https://www.arcgis.com/apps/mapviewer/index.html
- NOAA National Hurricane Center: https://www.nhc.noaa.gov/
- Source: National Institute of Standards and Technology: https://www.nist.gov/image/windzonemapjpg
- Virginia Department of Conservation and Recreation: Shoreline Advisory Service
- Commonwealth of Virginia: Coastal Primary Sand Dunes and Beaches in § 28.2-1400 to -1420
- Virginia Institute of Marine Science in conjunction with The College of William & Mary: Shoreline Evolution Studies
- BC Ministry of Energy, Mines and Petroleum Resources: Sea-to-Sky Slide Diagram
- United States Drought Monitor: https://droughtmonitor.unl.edu/Data.aspx
- Commonwealth of Virginia Drought Monitoring Task Force
- United States Census of Agriculture 2017
- National Oceanic and Atmospheric Administration (NOAA) National Climatic Data Center: Climate at a Glance
- FEMA ArcGIS Mapping U.S. Drought Intensity Layer: Historical Occurrences
- United States Geological Study: *"Science of Earthquakes"*
- Virginia Tech Seismological Observatory: http://www.magma.geos.vt.edu/vtso/va_quakes.html#:~:text=Virginia%20has%20had%20over%20160,with%20two%20felt%20each%20year.

- Virginia Department of Conservation and Recreation: Dam Database
- Commonwealth of Virginia Hazard Mitigation Plan
- FEMA Rehabilitation of High Hazard Potential Dams: Grant Program Guidance June 2020: Section 5.8.1.3
- Fiscal Year 2021 Rehabilitation of High Hazard Potential Dams – Notice of Funding Opportunity (NOFO)
- News on the Neck – Chandlers Mill Pond Dam Failure: https://www.newsontheneck.com/news/heavy-rains-devastate-dam/article_ee3dc382-d53e-11eb-8a7a-9f2f799ef5a4.html

B.6 Sources for Risk Assessment (Section 7)

- NOAA NCEI Storm Events Database
- FEMA National Risk Index Community Reports
- Virginia Department of Fire Programs Fire Incident Database
- HAZUS
- USGS Earthquake Database
- National Flood Insurance Program
- Virginia Department of Conservation and Recreation Flood Risk Information System
- FEMA NFIP – Data & Analytics: https://nfipservices.floodsmart.gov/reports-flood-insurance-data
- FEMA. Guidance for Severe Repetitive Loss Properties. https://www.fema.gov/pdf/nfip/manual201205/content/20_srl.pdf
- Code of the Commonwealth of Virginia: §15.2-2223 and §15.2-2280
- National Park Service: *"Wildfire Causes and Evaluations"* (March 8, 2022)
- United States Department of Environmental Quality
- FEMA Risk Management: Snow Load Safety Guide P-957
- Commonwealth Center for Coastal Recurrent Flooding Resiliency: "Future Sea Level and Recurrent Flooding Risk for Coastal Virginia"
- USDA National Agricultural Statistics Service
- USGS ArcGIS: https://www.arcgis.com/apps/mapviewer/index.html?layers=f36207114ae94f3987e5f0423170f2a5
- Commonwealth of Virginia: The Bay Act Program

B.7 Sources for Capability Assessment (Section 8)

- 44 CFR §201.4 of the Disaster Mitigation Act of 2000 (DMA2K; Public Law 106-390, signed into law October 10, 2000
- Code of Federal Regulations, Stafford Act Title 44, Chapter 1, Part 201 (44 CFR Part 201)
- Sandy Recovery Improvement Act (SRIA) of 2013
- National Flood Insurance Act of 1968
- Water Infrastructure Improvements for the Nation (WIIN) Act of 2016
- Chesapeake Bay Preservation Act: Area Designation and Management Regulations
- Virginia Uniform Statewide Building Code (VUSBC)
- The Code of Virginia Chapter 3.2 – Commonwealth of Virginia Department of Emergency Management establishment
- Jurisdiction Comprehensive Plans

  - Lancaster County
  - Town of Irvington
  - Town of Kilmarnock
  - Town of White Stone
  - Northumberland County
  - Richmond County
  - Town of Warsaw
  - Westmoreland County
  - Town of Colonial Beach
  - Town of Montross
- Northern Neck Planning District Commission: Regional Enterprise Zones: https://www.northernneck.us/enterprise-zones/
- Virginia Marine Institute of Marine Science, College of William and Mary: Virginia Coastal Zone Management Program
- Code of Virginia Article 2.5. Chesapeake Bay Preservation Act. § 62.1-44.15:72

B.8 Sources for Mitigation Action Plan (Section 9)

- Commonwealth of Virginia Coastal Resiliency Master Plan
- Flood Resistant Design and Construction Guidance: ASCE 24-05
- National Flood Insurance Program
- Institute for Engagement & Negotiation at the University of Virginia, The Virginia Coastal Policy Center at William & Mary Law School, and Old Dominion University/Virginia Sea Grant Climate Adaptation and Resilience Program: Resiliency Adaptation Feasibility Tool and Jurisdiction Score Cards
- FEMA Community Rating System Program
- FEMA Local Mitigation Planning Guidebook

B.9 Sources for Plan Monitoring and Maintenance (Section 10)

- 44 CFR Requirement for Plan Monitoring and Maintenance: Requirement §201.6(c)(4)

B.10 Sources for Hazards

Tornado

- HAZUS
- National Risk Index
- NOAA NCEI Storm Database
- NOAA and News Leader: Tornado Archive: https://data.newsleader.com/tornado-archive/

Severe Weather

- HAZUS
- National Risk Index
- NOAA NCEI Storm Database
- Unites States Army Corp of Engineers: *The North Atlantic Coast Comprehensive Study*

Coastal Flooding

- HAZUS
- National Risk Index
- NOAA NCEI Storm Database
- Unites States Army Corp of Engineers: *The North Atlantic Coast Comprehensive Study*
- Commonwealth Center for Recurrent Flooding Resiliency: *The Future Sea Level and Recurrent Flooding Report for Coastal Virginia*
- Virginia Department of Conservation and Recreation ArcGIS Flood Layers
- Virginia Institute of Marine Science in conjunction with The College of William & Mary: Shoreline Evolution Studies
- Commonwealth of Virginia Coastal Resilience Master Plan
- National Flood Insurance Program
- Virginia Department of Conservation and Recreation Flood Risk Information System
- USGS ArcGIS: https://www.arcgis.com/apps/mapviewer/index.html?layers=f36207114ae94f3987e5f0423170f2a5
- Commonwealth of Virginia: The Bay Act Program

Riverine Flooding

- HAZUS
- National Risk Index
- NOAA NCEI Storm Database
- Commonwealth Center for Recurrent Flooding Resiliency: *The Future Sea Level and Recurrent Flooding Report for Coastal Virginia*
- Virginia Department of Conservation and Recreation ArcGIS Flood Layers
- National Flood Insurance Program
- Virginia Department of Conservation and Recreation Flood Risk Information System

Wildfire

- HAZUS
- National Risk Index
- NOAA NCEI Storm Database
- Virginia Department of Fire Programs Fire Incident Database
- National Park Service (NPS)*: Wildfire Causes and Evaluations*
- National Wildfire Coordinating Group: Wildland Urban Interface Wildfire Mitigation Desk Reference Guide
- VDOF ArcGIS: Wildfire Risk Map Layer: https://www.arcgis.com/apps/mapviewer/index.html

Winter Weather

- HAZUS
- National Risk Index
- NOAA NCEI Storm Database
- FEMA Risk Management: Snow Load Safety Guide P-957

Hurricane/Tropical Storm

- HAZUS
- National Risk Index

- NOAA NCEI Storm Database
- NOAA National Hurricane Center: https://www.nhc.noaa.gov/
- Source: National Institute of Standards and Technology: https://www.nist.gov/image/windzonemapjpg
- Virginia Department of Conservation and Recreation Flood Risk Information System

Coastal Erosion

- HAZUS
- National Risk Index
- NOAA NCEI Storm Database
- NOAA National Hurricane Center: https://www.nhc.noaa.gov/
- Virginia Department of Conservation and Recreation: Shoreline Advisory Service
- Commonwealth of Virginia: Coastal Primary Sand Dunes and Beaches in § 28.2-1400 to -1420
- Virginia Institute of Marine Science in conjunction with The College of William & Mary: Shoreline Evolution Studies
- USGS ArcGIS: https://www.arcgis.com/apps/mapviewer/index.html?layers=f36207114ae94f3987e5f0423170f2a5
- Commonwealth of Virginia: The Bay Act Program

Pluvial Flooding

- HAZUS
- National Risk Index
- NOAA NCEI Storm Database
- NOAA National Hurricane Center: https://www.nhc.noaa.gov/
- United States Department of Environmental Quality Agency
- Virginia Department of Conservation and Recreation ArcGIS Flood Layers
- National Flood Insurance Program
- Virginia Department of Conservation and Recreation Flood Risk Information System

Landslide

- HAZUS
- National Risk Index
- NOAA NCEI Storm Database
- BC Ministry of Energy, Mines and Petroleum Resources: Sea-to-Sky Slide Diagram

Drought

- HAZUS
- National Risk Index
- NOAA NCEI Storm Database
- United States Drought Monitor: https://droughtmonitor.unl.edu/Data.aspx
- Commonwealth of Virginia Drought Monitoring Task Force
- United States Census of Agriculture 2017

Heatwave

- HAZUS
- National Risk Index
- NOAA NCEI Storm Database

- National Oceanic and Atmospheric Administration (NOAA) National Climatic Data Center: Climate at a Glance
- FEMA ArcGIS Mapping U.S. Drought Intensity Layer: Historical Occurrences

Earthquake

- HAZUS
- National Risk Index
- NOAA NCEI Storm Database
- United States Geological Study: *"Science of Earthquakes"*
- Virginia Tech Seismological Observatory: http://www.magma.geos.vt.edu/vtso/va_quakes.html#:~:text=Virginia%20has%20had%20over%20160,with%20two%20felt%20each%20year.

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Appendix C
Planning Process

D. Capabilities Assessments

This section contains the capabilities assessment updates for each jurisdiction participating in the Northern Neck Regional Hazard Mitigation Plan Update.

Programs and Capabilities	2017 NNPDC	NEW 2023 NNPDC
Northern Neck Planning District Commission		
Comprehensive Plan	Y	Y
With Hazard Mitigation Element	Advisor	Advisor
Adoption		
With Coastal Protection Element		
Capital Improvement Plan	Advisor	Advisor
Economic Development Plan	Y	Y
Downtown Development/Re-Development Authority Plans	Advisor	Advisor
Enterprise Zones	Advisor	Advisor
Transportation Planning	VDOT/PDC	VDOT/PDC
Subdivision Regulations	N/A	N/A
Zoning Ordinance	N/A	N/A
Site Plan Review Procedures		
Building Code (or ordinance) addresses flood	N/A	N/A
Designated Building Official		
Regular Inspection Protocols		
Civil Engineer Staff		
GIS Coordinator		
Mitigation Projects		
Private Residential Elevations (self-financed)	N/A	N/A
Resident and Community Outreach Inc. Ready.gov	Y	Y
Exclude critical infrastructure from SFHA	N/A	N/A
Elevate Residences or Property Protection through HMA grants	Y	Y
Grant Officials		
Natural Systems Protection		
Natural or Cultural Resources Inventory		N/A
Open Space	N/A	N/A
Parks and Recreation		N/A
Living Shorelines Program	N/A	Y
Stormwater Management and Water Quality Programs		
Stormwater Management Plan		
Total Daily Maximum Load (TMDL) Stream Segments**		Y
Watershed Improvement Plans***	Y	Y
Erosion or Sediment Control Program		N/A
Erosion and Sediment Control Ordinances	N/A	

Programs and Capabilities	2017 NNPDC	NEW 2023 NNPDC
Floodplain Management	N/A	N/A
RAFT Card (Resilience Adaptation Feasibility Tool)	N/A	N/A
Floodplain Administrator	N/A	N/A
Participates in NFIP	N/A	N/A
Year Joined NFIP	N/A	N/A
Effective FIRM Date	N/A	N/A
Additional Freeboard Requirements (inches)	N/A	N/A
LiMWA standards in High Hazard Coastal Areas	N/A	N/A
Participates in CRS	N/A	N/A
Emergency Operations Management	LEPC	LEPC
Emergency Operations Plan	2011	N/A
Local Government EOPs		VDEM
Continuity of Operations Plan		advisor
Warning Sirens or warning alert systems		N
Evacuation Plans		
Shelter and Family Re-Unification Plan		
Special Needs Population Emergency Planning		
Companion Animal Sheltering and Re-Unification Plan		
Dedicated Emergency Management Website	Y	
Education Programs	N/A	Y
School Facility Emergency Operations Plans		N/A
School Emergency Notification, Evacuation and Emergency Planning		
College Campus Plans		
College/University Emergency Notification, Evacuation and Emergency Planning		
Tourism	Y*	
Community Planner		3
Additional Capabilities		

Programs and Capabilities	2017 Lancaster County	NEW 2023 Lancaster County
Lancaster County		
Comprehensive Plan	**Y**	Y
With Hazard Mitigation Element	Y	Nov. 2022
Adoption	Oct 2013	Y
With Coastal Protection Element	Y	Y
Capital Improvement Plan	Y	Y
Economic Development Plan	Y	Y
Downtown Development/Re-Development Authority Plans	N	Y
Enterprise Zones	Y	N/A
Transportation Planning	N/A	Y
Subdivision Regulations	Y	Y
Zoning Ordinance	Y	Y
Site Plan Review Procedures	Y	Y
Building Code (or ordinance) addresses flood	Y	Y
Designated Building Official	Y	Y
Regular Inspection Protocols	Y	N
Civil Engineer Staff	Y	Y
GIS Coordinator	Y	Y
Mitigation Projects		Y
Private Residential Elevations (self-financed)	Y	Y
Resident and Community Outreach Inc. Ready.gov	Y	Y
Exclude critical infrastructure from SFHA	Y	2
Elevate Residences or Property Protection through HMA grants	Y	Y
Grant Officials	Y	Y
Natural Systems Protection		Y
Natural or Cultural Resources Inventory	Y	Y
Open Space	Y	Y
Parks and Recreation	Y	Y
Living Shorelines Program	Y	Y
Stormwater Management and Water Quality Programs		Y
Stormwater Management Plan		Y
Total Daily Maximum Load (TMDL) Stream Segments**	Y2	Y
Watershed Improvement Plans***	Y	Y
Erosion or Sediment Control Program	Y	Y
Erosion and Sediment Control Ordinances	Y	

Programs and Capabilities	2017 Lancaster County	NEW 2023 Lancaster County
Floodplain Management		Y
RAFT Card (Resilience Adaptation Feasibility Tool)	Y	Y
Floodplain Administrator	Y	Y
Participates in NFIP	Y	Y
Year Joined NFIP	3-4-1988	03/04/1988
Effective FIRM Date	10/02/2014	07/05/2022
Additional Freeboard Requirements (inches)	N/A	18”
LiMWA standards in High Hazard Coastal Areas	Y	N
Participates in CRS	N	Y
Emergency Operations Management	Y	Y
Emergency Operations Plan	Y	Y
Local Government EOPs	Y	N
Continuity of Operations Plan	N	Y
Warning Sirens or warning alert systems	Y	Y
Evacuation Plans	Y	Y
Shelter and Family Re-Unification Plan	Y	Y
Special Needs Population Emergency Planning	Y	Y
Companion Animal Sheltering and Re-Unification Plan	Y	Y
Dedicated Emergency Management Website	Y	Y
Education Programs	Y	Y
School Facility Emergency Operations Plans	UNKNOWN	Y
School Emergency Notification, Evacuation and Emergency Planning	N	Y
College Campus Plans	Y	Y
College/University Emergency Notification, Evacuation and Emergency Planning	Y	Y
Tourism		Y
Community Planner		

Programs and Capabilities	2017 Town of Irvington	NEW 2023 Town of Irvington
Town of Irvington		
Comprehensive Plan		Y
With Hazard Mitigation Element		N
Adoption		Sept 2017***
With Coastal Protection Element		N
Capital Improvement Plan		N
Economic Development Plan		N
Downtown Development/Re-Development Authority Plans		N
Enterprise Zones		N
Transportation Planning		N/A
Subdivision Regulations		Y
Zoning Ordinance		Y
Site Plan Review Procedures		Y
Building Code (or ordinance) addresses flood		1
Designated Building Official		1
Regular Inspection Protocols		1
Civil Engineer Staff		1
GIS Coordinator		1
Mitigation Projects		
Private Residential Elevations (self-financed)		1
Resident and Community Outreach Inc. Ready.gov		1
Exclude critical infrastructure from SFHA		N
Elevate Residences or Property Protection through HMA grants		2
Grant Officials		N
Natural Systems Protection		
Natural or Cultural Resources Inventory		Y
Open Space		Y
Parks and Recreation		Y
Living Shorelines Program		Y
Stormwater Management and Water Quality Programs		
Stormwater Management Plan		1
Total Daily Maximum Load (TMDL) Stream Segments**		Y
Watershed Improvement Plans***		Y
Erosion or Sediment Control Program		
Erosion and Sediment Control Ordinances		1

Programs and Capabilities	2017 Town of Irvington	NEW 2023 Town of Irvington
Floodplain Management	-	-
RAFT Card (Resilience Adaptation Feasibility Tool)		N/A
Floodplain Administrator		Y
Participates in NFIP		Y
Year Joined NFIP		10/18/1974
Effective FIRM Date		08/04/1987
Additional Freeboard Requirements (inches)		N/A
LiMWA standards in High Hazard Coastal Areas		N
Participates in CRS		N
Emergency Operations Management		Y
Emergency Operations Plan		1
Local Government EOPs		1
Continuity of Operations Plan		N****
Warning Sirens or warning alert systems		1
Evacuation Plans		1
Shelter and Family Re-Unification Plan		1
Special Needs Population Emergency Planning		1
Companion Animal Sheltering and Re-Unification Plan		1
Dedicated Emergency Management Website		1
Education Programs		N/A
School Facility Emergency Operations Plans		N/A
School Emergency Notification, Evacuation and Emergency Planning		N/A
College Campus Plans		N/A
College/University Emergency Notification, Evacuation and Emergency Planning		N/A
Tourism		3
Community Planner		1
****NOTE: Irvington was not included in the capabilities assessment matrix in the 2017 plan.**		

Programs and Capabilities	2017 Town of Kilmarnock	NEW 2023 Town of Kilmarnock
Town of Kilmarnock		
Comprehensive Plan		Y
With Hazard Mitigation Element		N
Adoption		April 2014
With Coastal Protection Element		N/A
Capital Improvement Plan		Y
Economic Development Plan		N
Downtown Development/Re-Development Authority Plans		Y
Enterprise Zones		Y
Transportation Planning		N/A
Subdivision Regulations		Y
Zoning Ordinance		Y
Site Plan Review Procedures		Y
Building Code (or ordinance) addresses flood		1
Designated Building Official		1
Regular Inspection Protocols		1
Civil Engineer Staff		5
GIS Coordinator		Y
Mitigation Projects		
Private Residential Elevations (self-financed)		N/A
Resident and Community Outreach Inc. Ready.gov		1
Exclude critical infrastructure from SFHA		N/A
Elevate Residences or Property Protection through HMA grants		N/A
Grant Officials		N
Natural Systems Protection		
Natural or Cultural Resources Inventory		Y
Open Space		Y
Parks and Recreation		N
Living Shorelines Program		N/A
Stormwater Management and Water Quality Programs		
Stormwater Management Plan		1
Total Daily Maximum Load (TMDL) Stream Segments**		Y
Watershed Improvement Plans***		Y
Erosion or Sediment Control Program		
Erosion and Sediment Control Ordinances		N/A

Programs and Capabilities	2017 Town of Kilmarnock	NEW 2023 Town of Kilmarnock
Floodplain Management		
RAFT Card (Resilience Adaptation Feasibility Tool)		Y
Floodplain Administrator		Y
Participates in NFIP		Y
Year Joined NFIP		09/17/2010
Effective FIRM Date		07/05/2022
Additional Freeboard Requirements (inches)		18”
LiMWA standards in High Hazard Coastal Areas		N/A
Participates in CRS		N
Emergency Operations Management		Y
Emergency Operations Plan		1
Local Government EOPs		1
Continuity of Operations Plan		N
Warning Sirens or warning alert systems		Y
Evacuation Plans		1
Shelter and Family Re-Unification Plan		1
Special Needs Population Emergency Planning		1
Companion Animal Sheltering and Re-Unification Plan		1
Dedicated Emergency Management Website		1
Education Programs		Y
School Facility Emergency Operations Plans		Y
School Emergency Notification, Evacuation and Emergency Planning		Y
College Campus Plans		Y
College/University Emergency Notification, Evacuation and Emergency Planning		Y
Tourism		3
Community Planner		Y
****NOTE: Kilmarnock was not included in the capabilities assessment matrix in the 2017 plan.**		

Programs and Capabilities	2017 Town of White Stone	NEW 2023 Town of White Stone
Town of White Stone		
Comprehensive Plan		Y
With Hazard Mitigation Element		N
Adoption		Oct. 2013
With Coastal Protection Element		N/A
Capital Improvement Plan		Y
Economic Development Plan		Y
Downtown Development/Re-Development Authority Plans		Y
Enterprise Zones		Y
Transportation Planning		N/A
Subdivision Regulations		1
Zoning Ordinance		1
Site Plan Review Procedures		1
Building Code (or ordinance) addresses flood		1
Designated Building Official		Y
Regular Inspection Protocols		1
Civil Engineer Staff		N
GIS Coordinator		1
Mitigation Projects		
Private Residential Elevations (self-financed)		N/A
Resident and Community Outreach Inc. Ready.gov		1
Exclude critical infrastructure from SFHA		Y
Elevate Residences or Property Protection through HMA grants		N/A
Grant Officials		N
Natural Systems Protection		
Natural or Cultural Resources Inventory		Y
Open Space		Y
Parks and Recreation		N
Living Shorelines Program		N/A
Stormwater Management and Water Quality Programs		
Stormwater Management Plan		1
Total Daily Maximum Load (TMDL) Stream Segments**		Y
Watershed Improvement Plans***		Y
Erosion or Sediment Control Program		
Erosion and Sediment Control Ordinances		N/A

Programs and Capabilities	2017 Town of White Stone	NEW 2023 Town of White Stone
Floodplain Management		
RAFT Card (Resilience Adaptation Feasibility Tool)		Y
Floodplain Administrator		Y
Participates in NFIP		Y
Year Joined NFIP		09/24/1984
Effective FIRM Date		11/17/2020
Additional Freeboard Requirements (inches)		N/A
LiMWA standards in High Hazard Coastal Areas		N/A
Participates in CRS		N
Emergency Operations Management		Y
Emergency Operations Plan		1
Local Government EOPs		1
Continuity of Operations Plan		N
Warning Sirens or warning alert systems		1
Evacuation Plans		1
Shelter and Family Re-Unification Plan		1
Special Needs Population Emergency Planning		1
Companion Animal Sheltering and Re-Unification Plan		1
Dedicated Emergency Management Website		1
Education Programs		1
School Facility Emergency Operations Plans		N/A
School Emergency Notification, Evacuation and Emergency Planning		N/A
College Campus Plans		N/A
College/University Emergency Notification, Evacuation and Emergency Planning		N/A
Tourism		3
Community Planner		Y
****NOTE: White Stone was not included in the capabilities assessment matrix in the 2017 plan.**		

Programs and Capabilities	2017 Northumberland County	NEW 2023 Northumberland County
Northumberland County		
Comprehensive Plan	Y	Y
With Hazard Mitigation Element	Y	Y
Adoption	NOV 2016	Nov.2016
With Coastal Protection Element	Y	Y
Capital Improvement Plan	Y	Y
Economic Development Plan	Y	Y
Downtown Development/Re-Development Authority Plans	N	Y
Enterprise Zones	Y	Y
Transportation Planning	N/A	N/A
Subdivision Regulations	Y	Y
Zoning Ordinance	Y	Y
Site Plan Review Procedures	Y	Y
Building Code (or ordinance) addresses flood	Y	Y
Designated Building Official	Y	Y
Regular Inspection Protocols	Y	Y
Civil Engineer Staff	Y	N
GIS Coordinator	Y	Y
Mitigation Projects		
Private Residential Elevations (self-financed)	Y	Y
Resident and Community Outreach Inc. Ready.gov	Y	Y
Exclude critical infrastructure from SFHA	Y	Y
Elevate Residences or Property Protection through HMA grants	Y	2
Grant Officials	Y	N
Natural Systems Protection		
Natural or Cultural Resources Inventory	Y	Y
Open Space	Y	Y
Parks and Recreation	Y	Y
Living Shorelines Program	Y	Y
Stormwater Management and Water Quality Programs		
Stormwater Management Plan		Y
Total Daily Maximum Load (TMDL) Stream Segments**	Y	Y
Watershed Improvement Plans***	Y	Y
Erosion or Sediment Control Program	Y	Y
Erosion and Sediment Control Ordinances	Y	Y

Programs and Capabilities	2017 Northumberland County	NEW 2023 Northumberland County
Floodplain Management	Y	
RAFT Card (Resilience Adaptation Feasibility Tool)	Y	Y
Floodplain Administrator	Y	Y
Participates in NFIP	Y	Y
Year Joined NFIP	7/4/1989	7/4/1989
Effective FIRM Date	2/18/2015	12/30/2021
Additional Freeboard Requirements (inches)	12”	24”
LiMWA standards in High Hazard Coastal Areas	Y	Y
Participates in CRS	Y	N
Emergency Operations Management	Y	Y
Emergency Operations Plan	Y	Y
Local Government EOPs	Y	Y
Continuity of Operations Plan	Y	N****
Warning Sirens or warning alert systems	Y	Y
Evacuation Plans	Y	Y
Shelter and Family Re-Unification Plan	Y	Y
Special Needs Population Emergency Planning	Y	Y
Companion Animal Sheltering and Re-Unification Plan	Y	Y
Dedicated Emergency Management Website	Y	Y
Education Programs	Y	Y
School Facility Emergency Operations Plans	Y	Y
School Emergency Notification, Evacuation and Emergency Planning	Y	Y
College Campus Plans	N/A	N/A
College/University Emergency Notification, Evacuation and Emergency Planning	N/A	N/A
Tourism	Y	Y
Community Planner		Y

Programs and Capabilities	2017 Richmond County	NEW 2023 Richmond County
Richmond County		
Comprehensive Plan	Y	Y
With Hazard Mitigation Element	Y	Y
Adoption	Jul. 2013	Nov. 2022
With Coastal Protection Element	Y	Y
Capital Improvement Plan	Y	Y
Economic Development Plan	N	Y
Downtown Development/Re-Development Authority Plans	Y	Y
Enterprise Zones	Y	Y
Transportation Planning	N/A	N/A
Subdivision Regulations	Y	Y
Zoning Ordinance	Y	Y
Site Plan Review Procedures	Y	Y
Building Code (or ordinance) addresses flood	Y	Y
Designated Building Official	Y	Y
Regular Inspection Protocols	Y	Y
Civil Engineer Staff	Y	5
GIS Coordinator	Y	Y
Mitigation Projects		
Private Residential Elevations (self-financed)	Y	Y
Resident and Community Outreach Inc. Ready.gov	Y	Y
Exclude critical infrastructure from SFHA	Y	Y
Elevate Residences or Property Protection through HMA grants	Y1	2
Grant Officials		Y
Natural Systems Protection	Y	Y
Natural or Cultural Resources Inventory	Y	Y
Open Space	Y	Y
Parks and Recreation	Y	Y
Living Shorelines Program	Y	Y
Stormwater Management and Water Quality Programs		
Stormwater Management Plan		Y
Total Daily Maximum Load (TMDL) Stream Segments**	Y	Y
Watershed Improvement Plans***	Y	Y
Erosion or Sediment Control Program	Y	Y
Erosion and Sediment Control Ordinances	Y	Y

Programs and Capabilities	2017 Richmond County	NEW 2023 Richmond County
Floodplain Management		
RAFT Card (Resilience Adaptation Feasibility Tool)		Y
Floodplain Administrator	Y	Y
Participates in NFIP	Y	Y
Year Joined NFIP	03-16-1989	3/16/1989
Effective FIRM Date	04/16/2015	06/26/2022
Additional Freeboard Requirements (inches)	N/A	N/A
LiMWA standards in High Hazard Coastal Areas		N/A
Participates in CRS	N	N
Emergency Operations Management	Y	Y
Emergency Operations Plan	Y	Y
Local Government EOPs	Y	Y
Continuity of Operations Plan		Y
Warning Sirens or warning alert systems	Y	Y
Evacuation Plans	Y	Y
Shelter and Family Re-Unification Plan	Y	Y
Special Needs Population Emergency Planning	Y	Y
Companion Animal Sheltering and Re-Unification Plan	Y	Y
Dedicated Emergency Management Website	Y	Y
Education Programs	Y	Y
School Facility Emergency Operations Plans	Y	Y
School Emergency Notification, Evacuation and Emergency Planning	Y	Y
College Campus Plans	Y	Y
College/University Emergency Notification, Evacuation and Emergency Planning	Y	Y
Tourism	Y	Y
Community Planner		Y

Programs and Capabilities	2017 Town of Warsaw	NEW 2023 Town of Warsaw
Town of Warsaw		
Comprehensive Plan		Y
With Hazard Mitigation Element		N
Adoption		May 2013*
With Coastal Protection Element		N
Capital Improvement Plan		Y
Economic Development Plan		Y
Downtown Development/Re-Development Authority Plans		Y
Enterprise Zones		Y
Transportation Planning		N/A
Subdivision Regulations		Y
Zoning Ordinance		Y
Site Plan Review Procedures		Y
Building Code (or ordinance) addresses flood		1
Designated Building Official		1
Regular Inspection Protocols		1
Civil Engineer Staff		N
GIS Coordinator		Y
Mitigation Projects		
Private Residential Elevations (self-financed)		N/A
Resident and Community Outreach Inc. Ready.gov		N/A
Exclude critical infrastructure from SFHA		N/A
Elevate Residences or Property Protection through HMA grants		2
Grant Officials		N
Natural Systems Protection		
Natural or Cultural Resources Inventory		N
Open Space		Y
Parks and Recreation		N
Living Shorelines Program		N/A
Stormwater Management and Water Quality Programs		
Stormwater Management Plan		Y
Total Daily Maximum Load (TMDL) Stream Segments**		Y
Watershed Improvement Plans***		Y
Erosion or Sediment Control Program		
Erosion and Sediment Control Ordinances		N/A

Programs and Capabilities	2017 Town of Warsaw	NEW 2023 Town of Warsaw
Floodplain Management		
RAFT Card (Resilience Adaptation Feasibility Tool)		Y
Floodplain Administrator		1
Participates in NFIP		1
Year Joined NFIP		N/A
Effective FIRM Date		N/A
Additional Freeboard Requirements (inches)		N/A
LiMWA standards in High Hazard Coastal Areas		N/A
Participates in CRS		N
Emergency Operations Management		Y
Emergency Operations Plan		1
Local Government EOPs		1
Continuity of Operations Plan		N
Warning Sirens or warning alert systems		1
Evacuation Plans		1
Shelter and Family Re-Unification Plan		1
Special Needs Population Emergency Planning		1
Companion Animal Sheltering and Re-Unification Plan		1
Dedicated Emergency Management Website		1
Education Programs		1
School Facility Emergency Operations Plans		1
School Emergency Notification, Evacuation and Emergency Planning		1
College Campus Plans		1
College/University Emergency Notification, Evacuation and Emergency Planning		1
Tourism		3
Community Planner		Y
****NOTE: Warsaw was not included in the capabilities assessment matrix in the 2017 plan.**		

Programs and Capabilities	2017 Westmoreland County	NEW 2023 Westmoreland County
Westmoreland County		
Comprehensive Plan	**Y**	Y
With Hazard Mitigation Element	Y	Y
Adoption	DEC 2010	Dec.2010
With Coastal Protection Element	Y	Y
Capital Improvement Plan	Y	Y
Economic Development Plan	N	Y
Downtown Development/Re-Development Authority Plans	Y	Y
Enterprise Zones		Y
Transportation Planning	N/A	N/A
Subdivision Regulations	Y	Y
Zoning Ordinance	Y	Y
Site Plan Review Procedures	Y	Y
Building Code (or ordinance) addresses flood	Y	Y
Designated Building Official	Y	Y
Regular Inspection Protocols	Y	Y
Civil Engineer Staff	Y	N
GIS Coordinator	Y	Y
Mitigation Projects		
Private Residential Elevations (self-financed)	Y	Y
Resident and Community Outreach Inc. Ready.gov	Y	Y
Exclude critical infrastructure from SFHA	Y	Y
Elevate Residences or Property Protection through HMA grants	N/A	N/A
Grant Officials		Y
Natural Systems Protection	Y	
Natural or Cultural Resources Inventory	Y	Y
Open Space	Y	Y
Parks and Recreation	Y	Y
Living Shorelines Program	Y	Y
Stormwater Management and Water Quality Programs		
Stormwater Management Plan		Y
Total Daily Maximum Load (TMDL) Stream Segments**	Y	Y
Watershed Improvement Plans***	Y	Y
Erosion or Sediment Control Program	Y	

Programs and Capabilities	2017 Westmoreland County	NEW 2023 Westmoreland County
Erosion and Sediment Control Ordinances	Y	Y
Floodplain Management		
RAFT Card (Resilience Adaptation Feasibility Tool		Y
Floodplain Administrator	Y	Y
Participates in NFIP	Y	Y
Year Joined NFIP	03-16-1989	9/18/1987
Effective FIRM Date	04/16/2015	4/16/2015
Additional Freeboard Requirements (inches)	18”	18"
LiMWA standards in High Hazard Coastal Areas		Y
Participates in CRS	N	N
Emergency Operations Management	Y	Y
Emergency Operations Plan	Y	Y
Local Government EOPs	Y	Y
Continuity of Operations Plan		N
Warning Sirens or warning alert systems	Y	Y
Evacuation Plans	Y	Y
Shelter and Family Re-Unification Plan	Y	Y
Special Needs Population Emergency Planning	Y	Y
Companion Animal Sheltering and Re-Unification Plan	Y	Y
Dedicated Emergency Management Website	Y	Y
Education Programs	Y	Y
School Facility Emergency Operations Plans	Y	Y
School Emergency Notification, Evacuation and Emergency Planning	Y	Y
College Campus Plans	N/A	N/A
College/University Emergency Notification, Evacuation and Emergency Planning	N/A	N/A
Tourism	Y	Y
Community Planner		Y

Programs and Capabilities	2017 Town of Colonial Beach	NEW 2023 Town of Colonial Beach
Town of Colonial Beach		
Comprehensive Plan	Y	Y
With Hazard Mitigation Element	Y	Y
Adoption	DEC 2010	Dec.2010
With Coastal Protection Element	Y	Y
Capital Improvement Plan	Y	Y
Economic Development Plan	N	Y
Downtown Development/Re-Development Authority Plans	Y	Y
Enterprise Zones		Y
Transportation Planning	N/A	N/A
Subdivision Regulations	Y	Y
Zoning Ordinance	Y	Y
Site Plan Review Procedures	Y	Y
Building Code (or ordinance) addresses flood	Y	Y
Designated Building Official	Y	Y
Regular Inspection Protocols	Y	Y
Civil Engineer Staff	Y	N
GIS Coordinator	Y	Y
Mitigation Projects		
Private Residential Elevations (self-financed)	Y	Y
Resident and Community Outreach Inc. Ready.gov	Y	Y
Exclude critical infrastructure from SFHA	Y	Y
Elevate Residences or Property Protection through HMA grants	N/A	N/A
Grant Officials		Y
Natural Systems Protection	Y	
Natural or Cultural Resources Inventory	Y	Y
Open Space	Y	Y
Parks and Recreation	Y	Y
Living Shorelines Program	Y	Y
Stormwater Management and Water Quality Programs		
Stormwater Management Plan		Y
Total Daily Maximum Load (TMDL) Stream Segments**	Y	Y
Watershed Improvement Plans***	Y	Y
Erosion or Sediment Control Program	Y	
Erosion and Sediment Control Ordinances	Y	Y

Programs and Capabilities	2017 Town of Colonial Beach	NEW 2023 Town of Colonial Beach
Floodplain Management		
RAFT Card (Resilience Adaptation Feasibility Tool)		Y
Floodplain Administrator	Y	Y
Participates in NFIP	Y	Y
Year Joined NFIP	03-16-1989	9/18/1987
Effective FIRM Date	04/16/2015	4/16/2015
Additional Freeboard Requirements (inches)	18”	18"
LiMWA standards in High Hazard Coastal Areas		Y
Participates in CRS	N	N
Emergency Operations Management	Y	Y
Emergency Operations Plan	Y	Y
Local Government EOPs	Y	Y
Continuity of Operations Plan		N
Warning Sirens or warning alert systems	Y	Y
Evacuation Plans	Y	Y
Shelter and Family Re-Unification Plan	Y	Y
Special Needs Population Emergency Planning	Y	Y
Companion Animal Sheltering and Re-Unification Plan	Y	Y
Dedicated Emergency Management Website	Y	Y
Education Programs	Y	Y
School Facility Emergency Operations Plans	Y	Y
School Emergency Notification, Evacuation and Emergency Planning	Y	Y
College Campus Plans	N/A	N/A
College/University Emergency Notification, Evacuation and Emergency Planning	N/A	N/A
Tourism	Y	Y
Community Planner		Y

Programs and Capabilities	2017 Town of Montross	NEW 2023 Town of Montross
Town of Montross		
Comprehensive Plan		N/A
With Hazard Mitigation Element		N/A
Adoption		N
With Coastal Protection Element		Y
Capital Improvement Plan		1
Economic Development Plan		1
Downtown Development/Re-Development Authority Plans		N
Enterprise Zones		1
Transportation Planning		1
Subdivision Regulations		1
Zoning Ordinance		1
Site Plan Review Procedures		1
Building Code (or ordinance) addresses flood		1
Designated Building Official		1
Regular Inspection Protocols		1
Civil Engineer Staff		1
GIS Coordinator		1
Mitigation Projects		
Private Residential Elevations (self-financed)		N/A
Resident and Community Outreach Inc. Ready.gov		N/A
Exclude critical infrastructure from SFHA		N/A
Elevate Residences or Property Protection through HMA grants		N/A
Grant Officials		N
Natural Systems Protection		1
Natural or Cultural Resources Inventory		1
Open Space		1
Parks and Recreation		N
Living Shorelines Program		N/A
Stormwater Management and Water Quality Programs		
Stormwater Management Plan		1
Total Daily Maximum Load (TMDL) Stream Segments**		Y
Watershed Improvement Plans***		Y
Erosion or Sediment Control Program		
Erosion and Sediment Control Ordinances		1

Programs and Capabilities	2017 Town of Montross	NEW 2023 Town of Montross
Floodplain Management		
RAFT Card (Resilience Adaptation Feasibility Tool)		N/A
Floodplain Administrator		1
Participates in NFIP		1
Year Joined NFIP		N/A
Effective FIRM Date		N/A
Additional Freeboard Requirements (inches)		N/A
LiMWA standards in High Hazard Coastal Areas		N/A
Participates in CRS		N
Emergency Operations Management		Y
Emergency Operations Plan		1
Local Government EOPs		1
Continuity of Operations Plan		N
Warning Sirens or warning alert systems		1
Evacuation Plans		1
Shelter and Family Re-Unification Plan		1
Special Needs Population Emergency Planning		1
Companion Animal Sheltering and Re-Unification Plan		1
Dedicated Emergency Management Website		1
Education Programs		1
School Facility Emergency Operations Plans		1
School Emergency Notification, Evacuation and Emergency Planning		1
College Campus Plans		N/A
College/University Emergency Notification, Evacuation and Emergency Planning		N/A
Tourism		3
Community Planner		1
****NOTE: Montross was not included in the capabilities assessment matrix in the 2017 plan.**		

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Appendix E
Jurisdiction Mitigation Action Changes

Mitigation Action #	2017 Action	Change Type	Reason for Change	2023 Action
NNPDC-1	Support mitigation projects that will result in protection of public or private property from natural hazards. Eligible projects include but are not limited to: 1. Acquisition of Floodprone property 2. Elevation of Floodprone structures 3. Minor structural flood control projects 4. Relocation of structures from hazard prone areas 5. Retrofitting of existing buildings, facilities and infrastructure 6. Retrofitting of existing buildings and facilities for shelters 7. Critical infrastructure protection measures 8. Stormwater management improvements 9. Advanced warning systems and hazard gauging systems (weather radios, reverse-911, stream gauges, I-flows) 10. Targeted hazard education 11. wastewater and water supply system hardening and mitigation	Updated	Cleaned up the language and streamlined the terminology	Support mitigation projects that conform to the requirements of the HMA program in terms of eligibility for participation and projects.
NNPDC-2	Integrate mitigation plan requirements and actions into other appropriate planning mechanisms such as comprehensive plans and capital improvement plans.	Updated	Reworded to clarify the purpose and intent.	Provide technical assistance to Northern Neck jurisdictions, to integrate mitigation plan requirements and actions into other appropriate planning mechanisms such as comprehensive and resiliency plans, and capital improvement plans.
NNPDC-3	Promotion, education and implementation of nature-based resiliency practices. Eligible projects include but are not limited to: 1. Ecosystem restoration approaches such as ecological restoration or forest and wetland landscape restoration. 2. Issue-specific	Broken into 2 mitigation actions.	Reworded # 3 and reference New #5 for new mitigation action separated from #3.	Promote practices implementing nature-based approaches that increase regional resiliency. Projects sought include but are not limited to: Ecosystem restoration and adaptation, green infrastructure, and ecosystem-based approaches addressing

	ecosystem related approaches such as ecosystem-based adaptation and mitigation, climate adaptation and ecosystem-based disaster risk reduction. 3. Infrastructure related approaches such as green and blue infrastructure. 4. Ecosystem-based management approaches such as integrated coastal zone and water resources management. 5. Ecosystem protection approaches such as area- based conservation and protected area management.			climate change, coastal resources, and conservation of protected areas.
NNPDC-4	Promote and grow the Living Shoreline Initiative in both its Non- structural and Combined structural/non-structural aspects. Actions taken may include, but are not limited to, grading land away from eroding shoreline, maintain riparian buggar adjacent to shorelines, and complement with other stormwater management (rain barrels, rain garden, conservation landscaping).	Updated	Updated the terminology and corrected grammar issues.	Promote and grow the Living Shoreline Initiative in both its Non- structural and Combined structural/non-structural aspects. Utilize techniques such as grading land away from eroding shoreline, maintaining, and upgrading riparian buffers adjacent to shorelines, and implementing green infrastructure and stormwater management improvements.
NNPDC-5		New	Broken into a separate action from action #3.	Seek data sources and educational opportunities that increase regional hazards awareness and provide additional knowledge to jurisdictional personnel that will be applied to project building and initiation.
NNPDC-6		New	NEW to match a regional intent of support to the jurisdictions' actions with similar intent. These initiatives have been occurring and the intent of this addition is to ensure expansion.	Expand upon current and create new public outreach activities. Utilize the PDC's website to advise citizens and visitors of local natural hazard risks, encourage citizen-based mitigation efforts and disaster preparation. Consider creating a "Program for Public Information" (PPI) Committee to assist with educating, distribution, and management. (*PPI is a suggestion under Activity 322 in the CRS Manual). Boost increased exposure and awareness to visitors, tourists, and part-time residents.

Mitigation Action #	2017 Action	Change Type	Reason for Change	2023 Action
Lancaster -1	The publication projects that will result in protection of public or private property from natural hazards. Eligible projects include, but are not limited to 1. Acquisition of flood prone property 2. elevation of flood prone structures 3. Minor structural flooding control projects 4. Relocation of structures from hazard prone areas 5 retrofitting of existing buildings, facilities, infrastructure 6. Retrofitting of existing buildings and facilities for shelters 7. Critical infrastructure 8. Protection measures, stormwater management improvements 9 Advanced warning systems and hazard gauging systems (weather radios, reverse 911, stream gauges. I-Flows.) 10. Targeted hazard education 11. Wastewater and water supply system hardening and mitigation	Updated.	Cleaned up the language and streamlined the purpose of the action.	Support mitigation projects that conform to the requirements of the HMA program in terms of eligibility for participation and projects.
Lancaster-3	Incorporate hazard mitigation techniques into new community facilities to minimize damages.	Updated.	Clarified language and incorporated FEMA and RAFT recommendations.	Research and incorporate additional mitigation techniques into community spaces that will further protect flood zones, increase green space, and improve stormwater drainage capacity - Discouraging items such as impermeable surfaces, the disturbance of natural vegetation, or penetration into the floodplains with any structural development not meant to assist in retaining landforms.
Lancaster-4	Encourage use of vegetation and revetments.to reduce shoreline erosion.	Updated.	Combined # 4,5 and 15. The intent was similar for all.	plumbing sources to build nature-based shoreline stabilization strategies continue best management practices in shoreline erosion

				prevention and mandate that new subdivisions require coordinated shoreline protection plans.
Lancaster-5	Require coordinated joint protection plans in new waterfront subdivisions.	Deleted.	Combine # 4 ,5 and 15. The intent was similar for all.	N/A
Lancaster-7	Identify existing prone structures that may benefit from mitigation measures such as elevation.	Updated.	Expanded and clarified language and intent. Change priority to high. Added property protection and structural to project type.	Identify areas of repetitive loss and severe repetitive loss structures to seek appropriate improvements underage and make guidelines.
Lancaster-8	Encourage waterfront property owners in existing communities to consider multi parcel shoreline protection strategies before they pursue individual approaches.	Updated.	Altered wording.	Encourage waterfront property owners in existing communities to consider community-based type parcel shoreline protection strategies before they pursue individual approaches.
Lancaster-9	Work with VDOT to evaluate at risk roads and implement mitigation measures. (e.g., elevation redesign).	Removed.	Not a County responsible action.	N/A
Lancaster-10	Work with private property owners VDOT and private utilities to trim or remove trees that could down power lines.	Removed.	Not a County responsible action.	N/A
Lancaster-11	Identify training opportunities for staff to chance ability to use GIS for Emergency Management needs.	Updated.	GIS actions have been initiated. Action altered to model the current objectives	Continue.to upgrade and expand the current GIS capabilities, training, and resources throughout the community.
Lancaster-12	Identify means to coordinate, collect and store damage assessment data in GIS format for each natural hazard event that causes death, injury or property damage.	Removed.	Completed and ongoing actions are covered in #11.	N/A
Lancaster-13	Consider participating in FEMA"s community rating system. (CRS)	Updated.	Reworded to encompass the	Seek further improvements to hazard mitigation elements that enable the

			next actions towards possible CRS. Some actions have been completed or initiated since the 2017 update.	community to become eligible for CRS participation.
Lancaster-14	Continue to enforce zoning and building codes to prevent construction within the floodplain.	Removed.	Not a mitigation action goal.	N/A
Lancaster-15	Develop vegetative planning programs for public shoreline property to serve as a model for public education purposes.	Removed.	Combined with number 4 and #5 due to similar objectives and goals.	N/A
Lancaster-16	Encourage the purchase of flood and or sewer backup insurance.	Removed.	Not a mitigation action goal. And education for such is integrated in new education and outreach goal action.	N/A
Lancaster- 17	Educate residents about flood insurance and ICC (Increased Cost of Compliance) Coverage.	Removed.	Integrated into new education and outreach goal action.	N/A
Lancaster.18	Prepare.an advisory pamphlet and distribute to occupants of housing units or businesses known to be in the floodplain, advising them of potential hazards in the area and of evacuation plans in the event of an emergency.	Removed.	Integrated into new education and outreach goal action.	N/A
Lancaster-19	Encourage the purchase and training on the use of NOAA. Radios. Provide NOAA radios to public facilities.	Updated.	Action has been initiated. Some equipment purchased. Action updated to reflect progress.	Expand the purchase and training on the use of NOAA radios. Provide NOAA radios to public facilities.

Lancaster-20	Maintain a voluntary agreement with FEMA to participate in the NF IP.	Removed.	This is a mandatory action for NFP participants and not a mitigation Goal action.	N/A
Lancaster-21	Maintain a publicly available copy of the effective flood insurance Rate map. (FIRM) and flood insurance study. (FIS). Support local request for updates when available.	Removed.	This is not a mitigation goal action. This is a requirement.	N/A
Lancaster-22	Adopt the most current DFIRM or FIRM and FIS as they become available.	Removed.	This is not a mitigation goal action. This is a requirement.	N/A
Lancaster-23	Share with FEMA any new technical or scientific data that may result in map revisions within six months of creation or identification of new data.	Removed.	This is not a mitigation goal action. This is a requirement.	
Lancaster-24	Assess local floodplain determination and maintain a record of approved changes to the local floodplain.	Removed.	Action has become obsolete with the implementation of FEMA 2.0 Tool.	N/A
Lancaster-25	Adopt or maintain a floodplain management ordinance that, at minimum, regulates the following. Issue permits for all proposed developments in the SFHA. Obtain review and utilize any base flood, elevation and floodway data and require BFE data for subdivision proposals and other development proposals larger than 50 lots or 5 acres. Identify measures to keep all new and substantially improved construction reasonably safe from flood to or above the BFE, including anchoring using flood resistant materials. Designing or locating utilities and service facilities to prevent water damage.	Altered.	The action has been initiated. The completed portion has been moved to completed. The ongoing portion has been retained.	Document and maintain records of elevation data that document lowest floor elevation for new or substantially improved structures.

Lancaster-26	Enforce the floodplain management ordinance by monitoring compliance and taking remedial action to correct violations.	Removed.	This is not a mitigation goal action. It is a requirement, and the County has expanded staffing to better accomplish this task.	N/A
Lancaster-27	Consider adoption of activities that extend beyond the minimum requirements, including those identified for participation in the Community rating system, freeboard prohibition of production or storage of chemicals in the SFHA. Prohibition of certain types of structures, such as hospitals, nursing homes, jails; prohibition of certain types of residential houses, such as manufactured homes and finally floodplain ordinances that now prohibit any new residential or non-residential structures in the SFHA.	Removed.	Objective and intent have been addressed in other actions and some of this has been completed with the RAFT and CRS actions.	N/A
Lancaster-28	Educate community members about the availability and value of flood insurance.	Removed.	County is not responsible for availability of flood insurance, and education is included in the new. Education and outreach action goal.	N/A
Lancaster-30	Provide general assistance to community members relating to insurance issues.	Removed.	County is not responsible for availability of flood insurance, and education is included in the new education and	N/A

			outreach action goal.	
Lancaster-31	N/A	NEW	Created a new all-encompassing education and outreach action goal. Note: This is a CRS qualifying activity.	Expand upon current and create new public outreach activities. Utilize the jurisdictions website to advise citizens and visitors of local natural hazard risks, Encourage citizen-based mitigation efforts and disaster preparation. Consider creating a "Program for Public Information Committee" (PPI) to assist with educating, distribution, and management. (*PPI is a suggestion under Activity 322 in the CRS manual). Boost increased exposure and awareness to visitors, tourists, and part-time residents.
Lancaster- 32	N/A	NEW	New mitigation action created from RAFT Scorecard recommendations.	Seek funding for and implement early warning signals/ systems/emergency warning tools for residents with increased attention to vulnerable populations.
Lancaster-33	N/A	NEW	New mitigation action created from RAFT Scorecard recommendations.	develop a resident emergency preparedness plan that identifies risk and needs, including knowledge of water safety.
Lancaster-New	N/A	NEW	New mitigation action created from HHPD section and recognition of HHPD in jurisdiction	Seek education and funding to initiate a program that will organize investigations and risk assessments that will utilize FEMA's risk prioritization methodology to define the HHPDs within the Region.
Mitigation Action #	**2017 Action**	**Change Type**	**Reason for Change**	**2023 Action**
Irvington-1	Support mitigation projects that will result in protection of public or private property from	Altered.	Cleaned up language and streamlined the	Support mitigation projects that conform to the requirements of the HMA programs in terms of eligibility for participation in projects.

	natural hazards. Eligible projects include but are not limited to 1. Acquisition of flood prone property 2. Elevation of flood prone structures 3. Minor structural flood control projects 4. Relocation of structures from hazard prone areas 5. Retrofitting of existing buildings, facilities, and infrastructure 6. Retrofitting of existing buildings and facilities for shelters 7. Critical infrastructure protection measures 8. Stormwater management improvements 9. Advanced warning systems and hazard gauging systems (weather radios, reverse-911, stream gauges, I-flows) 10. Targeted hazard education 11. wastewater and water supply system hardening and mitigation.		purpose of this action.	
Irvington-3	N/A	NEW	Created a new all-encompassing education and outreach action goal. Note: This is a CRS qualifying activity.	Expand upon current and create new public outreach activities. Utilize the jurisdiction's website to advise citizens and visitors of local natural hazard risks, encourage citizen-based mitigation efforts and disaster preparation. Consider creating a "Program for Public Information" (PPI) Committee to assist with educating, distribution, and management. (*PPI is a suggestion under Activity 322 in the CRS Manual). Boost increased exposure and awareness to visitors, tourists, and part-time residents.
Irvington-4	N/A	NEW	New mitigation action created from RAFT Scorecard recommendations.	Seek funding for and implement early warning signals/systems/emergency warning tools for residents with increased attention to vulnerable populations.

Irvington-5	N/A	NEW	New mitigation action.	Seek funding to assess and subsequentially improve stormwater management capabilities. Open

Mitigation Action #	2017 Action	Change Type	Reason for Change	2023 Action
Kilmarnock-1	Avoid establishing public service facilities and utilities, such as wastewater disposal facilities, within or near the Floodplain where they might create a hazard if damaged during a storm.	Removed.	This is an ordinance, not a future action goal.	N/A
Kilmarnock-2	Incorporate hazard mitigation techniques into new community facilities to minimize damages.	Updated.	Action has been initiated and Status has changed to ongoing.	N/A
Kilmarnock- 3	Investigate all critical community facilities, such as county administrative offices, shelters (non-school buildings), fire stations, and police stations, to evaluate their resistance to flood and wind hazards. Particular attention will be given to the HY AC systems and structural integrity of the buildings. Prioritize facilities in known hazard areas (e.g., floodplains).	Removed.	Action has been integrated. With other action goals. The intent was similar.	N/A
Kilmarnock-4	Implement a ditch maintenance program consisting of routine inspections and subsequent debris removal.	Removed.	This is VDOT's responsibility not the County's.	N/A
Kilmarnock-5	Initiate discussion with private utility companies to incorporate mitigation measures into new and existing development and any infrastructure repairs.	Removed.	Not an applicable action currently.	N/A
Kilmarnock-6	Replace traffic lights hung from wires with traffic lights hung from mast arms. Install all new traffic lights on mast arms. Ensure traffic light mechanisms are weatherproof.	Removed.	Not an applicable action currently.	N/A

Kilmarnock-7	Identify a program of corrective actions to improve stormwater systems capacity to handle major rain events.	Altered.	Combined multiple actions with the same intent.	Seek funding to assess and subsequentially improve stormwater management capabilities. Identify a program of corrective actions to improve stormwater systems capacity to handle major rain events.
Kilmarnock-8	Develop a Continuity of Operations Plan.	Removed.	Not a mitigation plan action.	N/A
Kilmarnock-9	Consider participating in FEMA's Community Rating System (CRS).	Removed	Removed. Not a feasible action currently with lack of resources.	N/A
Kilmarnock-10	Include an assessment and associated mapping of the jurisdiction's vulnerability to location specific hazards and make appropriate recommendations for the use of these hazard areas in the next comprehensive plan.	Removed	Removed – this would be accomplished during the stormwater management study.	N/A
Kilmarnock-11	Investigate using non-conforming or substantial damage provision to require hazard retrofitting of existing development.	Removed	Not a mitigation plan action.	N/A
Kilmarnock-12	Encourage the purchase of flood and/or sewer back-up insurance.	Removed	County is not responsible for availability of flood insurance, and education is included in the new. Education and outreach action goal.	N/A
Kilmarnock-13	Educate residents about flood insurance and ICC (Increased Cost of Compliance) Coverage.	Removed	County is not responsible for availability of flood insurance, and education is included in the	N/A

			new. Education and outreach action goal.	
Kilmarnock-14	Encourage the purchase and training on the use of NOAA radios. Provide NOAA radios to public facilities.	Removed.	Not an applicable action for locality.	N/A
Kilmarnock-15	Maintain a publicly available copy of the effective Flood Insurance Rate Map (FIRM) and Flood Insurance Study (FIS), Support local requests for map updates when available.	Removed	This is a requirement not a mitigation action goal.	N/A
Kilmarnock-16	Adopt the most current DFIRM or FIRM and FIS as they become available.	Removed	This is a requirement, not a mitigation action goal.	N/A
Kilmarnock-17	Share with FEMA any new technical or scientific data that may result in map revisions within six months of creation or identification of new data.	Removed	This is a requirement, not a mitigation action goal.	N/A
Kilmarnock-18	Assist with local floodplain determinations and maintain a record of approved changes to the local Floodplain.	Removed.	Obsolete with FEMA's 2.0 tool.	N/A
Kilmarnock-19	Adopt or maintain a floodplain management ordinance that at a minimum regulates the following: Issue permits for All proposed developments in the SFHA, Obtain, review, and utilize any base flood elevation and Floodway data, and require BFE data for subdivisions proposals and other development proposals larger than 50 lots or 5 acres; Identify measures to keep All new and substantially improved construction reasonably safe from flood to or above the Base Flood Elevation (BFE), including anchoring, using flood resistant materials, designing or locating utilities, and service facilities to prevent water damage; Document and maintain records of elevation data that document	Altered	Acton has been initiated and is ongoing – portions completed removed and ongoing portions.	Document and maintain records of elevation data that document lowest floor elevation for new or substantially improved structures.

	lowest floor elevation for new or substantially improved structures.			
Kilmarnock-20	Enforce the ordinance by monitoring compliance and taking remedial action to correct violations.	Removed	This is a requirement, not a mitigation action goal.	N/A
Kilmarnock-21	Consider adoption of activities that extend beyond the minimum requirements, including those identified for participation in the Community Rating System, freeboard, prohibition of production or storage of chemicals in SFHA, prohibition or certain types of structures such as: hospitals, nursing homes, jails, prohibition of certain types of residential housing such as manufactured homes, and finally floodplain ordinances, that prohibit any new residential or non-residential structures in the SFHA.	Removed	Moved to completed.	N/A
Kilmarnock-22	Educate community members about the availability and value of flood insurance.	Removed	Integrated into new education and outreach goal action.	N/A
Kilmarnock-23	Inform community property owners about changes to the DFIRM/FIRM that may impact their insurance rates.	Removed	Integrated into new education and outreach goal action.	N/A
Kilmarnock-24	Provide general assistance to community members relating to insurance issues.	Removed	Town is not responsible for insurance and education/outreach action covers the education intent.	N/A
Kilmarnock-25	Support mitigation projects that will result in protection of public or private property from natural hazards. Eligible projects include but are not limited to 1. Acquisition of flood prone property	Altered	Cleaned up language and streamlined the purpose of this action.	Support mitigation projects that conform to the requirements of the HMA program in terms of eligibility for participation and projects.

	2. Elevation of flood prone structures 3. Minor structural flood control projects 4. Relocation of structures from hazard prone areas 5. Retrofitting of existing buildings, facilities, and infrastructure 6. Retrofitting of existing buildings and facilities for shelters 7. Critical infrastructure protection measures 8. Stormwater management improvements 9. Advanced warning systems and hazard gauging systems (weather radios, reverse-911, stream gauges, I-flows) 10. Targeted hazard education 11. wastewater and water supply system hardening and mitigation.			
Kilmarnock-26	Integrate mitigation plan requirements and actions into other appropriate planning mechanisms and comprehensive plans, and capital improvement plans.	Altered	Altered for the inclusion of resiliency.	Integrate mitigation plan requirements and actions into other appropriate planning mechanisms such as resiliency and comprehensive plans, and capital improvement plans.
Kilmarnock-NEW	N/A	NEW	Created a new all-encompassing education and outreach action goal. Note: This is a CRS qualifying activity.	Expand upon current and create new public outreach activities. Utilize the jurisdiction's website to advise citizens and visitors of local natural hazard risks, encourage citizen-based mitigation efforts and disaster preparation. Consider creating a "Program for Public Information" (PPI) Committee to assist with educating, distribution, and management. (*PPI is a suggestion under Activity 322 in the CRS Manual). Boost increased exposure and awareness to visitors, tourists, and part-time residents.
Kilmarnock-NEW	N/A	NEW	Combined and updated for stormwater management.	Seek funding to assess and subsequentially improve stormwater management capabilities.

Kilmarnock-NEW	N/A	NEW	New mitigation action created from RAFT Scorecard recommendations.	Create open communication, education, and planning opportunities between emergency management and the business sector during severe weather emergencies or evacuations.
Mitigation Action #	**2017 Action**	**Change Type**	**Reason for Change**	**2023 Action**
White Stone-1	Support mitigation projects that will result in protection of public or private property from natural hazards. Eligible projects include but are not limited to 1. Acquisition of flood prone property 2. Elevation of flood prone structures 3. Minor structural flood control projects 4. Relocation of structures from hazard prone areas 5. Retrofitting of existing buildings, facilities, and infrastructure 6. Retrofitting of existing buildings and facilities for shelters 7. Critical infrastructure protection measures 8. Stormwater management improvements 9. Advanced warning systems and hazard gauging systems (weather radios, reverse-911, stream gauges, I-flows) 10. Targeted hazard education 11. wastewater and water supply system hardening and mitigation.	Altered	Cleaned up language and streamlined the purpose of this action.	Support mitigation projects that conform to the requirements of the HMA program in terms of eligibility for participation and projects.
White Stone-2	Integrate mitigation plan requirements and actions into other appropriate planning mechanisms and comprehensive plans, and capital improvement plans.	Altered	Altered for the inclusion of resiliency.	Integrate mitigation plan requirements and actions into other appropriate planning mechanisms such as comprehensive and resiliency plans, and capital improvement plans.
White Stone-3	Avoid establishing public service facilities and utilities, such as wastewater disposal facilities,	Removed	Completed action.	N/A

	within or near the floodplain where they might create a hazard if damaged during a storm.			
White Stone-4	Incorporate hazard mitigation techniques into new community facilities to minimize damages.	Altered	Action initiated and ongoing – altered to reflect.	Seek new and continue incorporating hazard mitigation techniques into new community facilities to minimize damages, such as the new wastewater treatment facility and backup electricity. Continuing Phases of project.
White Stone-5	Investigate All critical community facilities, such as county administrative offices, shelters (non-school buildings), fire stations, and police stations, to evaluate their resistance to flood and wind hazards. Particular attention will be given to the HVAC systems and structural integrity of the buildings. Prioritize facilities in known hazard areas (e.g., floodplains)	Removed	Integrated in Action #7 and #8 due to similar intents.	N/A
White Stone-6	Evaluate exiting storm water system to determine if it is adequate for existing (or future) flood hazards.	Altered	Additional intent to upgrade is added.	Evaluate exiting storm water system to determine if it is adequate for existing (or future) flood hazards and plan for upgrades.
White Stone-7	Identify need for backup generators, communications and/or vehicles at critical public facilities. Develop means to address shortfalls identified.	Altered	Clarified and integrated with other actions due to similar intent.	Seek funding to identify needs and execute needed upgrades to retrofit critical infrastructure buildings with emergency utility backups.
White Stone-8	Consider providing necessary electrical hook-up, wiring, and switches to allow readily accessible connections to emergency generators at selected critical public facilities.	Removed	Integrated with other actions of similar intent.	N/A
White Stone-9	Encourage the purchase of flood and/or sewer back-up insurance.	Removed	County is not responsible for availability of flood insurance, and education is included in the new. Education and outreach action goal.	N/A

White Stone-10	Develop and implement a ditch maintenance program consisting of routine inspections and subsequent debris removal.	Altered	Initiated and ongoing action – altered to reflect	Continue with a ditch maintenance program consisting of routine inspections and subsequent debris removal to reduce the risk of pluvial flooding events.
White Stone-11	Identify program of corrective actions to improve stormwater systems capacity to handle major rain events.	Removed	Integrated with actions of similar intent - #6.	N/A
White Stone-12	Continue to enforce zoning and building codes to prevent construction within the floodplain.	Removed	This is a requirement, not a mitigation action goal.	N/A
White Stone-NEW	N/A	NEW	Created a new all-encompassing education and outreach action goal. Note: This is a CRS qualifying activity.	Expand upon current and create new public outreach activities. Utilize the jurisdiction's website to advise citizens and visitors of local natural hazard risks, encourage citizen-based mitigation efforts and disaster preparation. Consider creating a "Program for Public Information" (PPI) Committee to assist with educating, distribution, and management. (*PPI is a suggestion under Activity 322 in the CRS Manual). Boost increased exposure and awareness to visitors, tourists, and part-time residents.
White Stone-NEW	N/A	NEW	New mitigation action created from RAFT Scorecard recommendations.	Research and seek funding for upgrades to communications that would include early warning signals/systems/emergency warning tools for residents with increased attention to vulnerable populations.
Mitigation Action #	**2017 Action**	**Change Type**	**Reason for Change**	**2023 Action**
Northumberland-1	Incorporate hazard mitigation techniques into new community facilities to minimize damages.	Altered	Expanded and integrated with actions of similar intent.	Research and incorporate additional mitigation techniques into community spaces that will further protect flood zones, increase green-space, and improve stormwater drainage capacity, discouraging items such as impermeable surfaces, the disturbance of

				natural vegetation, or penetration into the floodplains with any structural development not meant to assist in retaining landforms.
Northumberland-2	Encourage use of vegetation and revetments to reduce shoreline erosion.	Altered	Expanded and priority upgraded to HIGH.	Seek funding sources to build nature-based shoreline stabilization strategies. Continue best management practices in shoreline erosion prevention, and mandate that new subdivisions require coordinated shoreline protection plans.
Northumberland-4	Consider implementing a wetlands acquisition and /or restoration program.	Altered	Expanded	Engage in a wetlands acquisition and /or restoration program with Wetlands Watch and other conservation partners.
Northumberland-5	Increase enforcement and education regarding the tie down of propane and other fuel tanks	Removed	Fuel tank security is mandated by fuel companies in installation and the education is integrated into new education and outreach action.	N/A
Northumberland-6	Identify existing flood prone structures that may benefit from mitigation measures such as elevation.	Removed	Integrated with actions of similar intent.	N/A
Northumberland-7	Encourage waterfront property owners in existing communities to consider multi-parcel shoreline protection strategies before they pursue individual approaches.	Altered	Clarified wording	Encourage waterfront property owners in existing communities to consider community-based multi-parcel shoreline protection strategies before they pursue individual approaches.
Northumberland-8	Work with VDOT to evaluate at-risk roads and implement mitigation measures (e.g., elevation, redesign).	Altered	Added “prevention” to project types.	N/A
Northumberland-10	Encourage the purchase of flood and/or sewer back-up insurance.	Removed	County is not responsible for availability of flood insurance, and education is	N/A

			included in the new education and outreach action goal.	
Northumberland-11	Educate residents about flood insurance and ICC (Increased Cost of Compliance) Coverage.	Removed	County is not responsible for availability of flood insurance, and education is included in the new education and outreach action goal.	N/A
Northumberland-12	Prepare an advisory pamphlet and distribute to occupants of housing units or businesses known to be in the floodplain advising them of the potential hazards in the area and of evacuation plans in the event of an emergency.	Removed	Integrated into the new education and outreach action goal.	N/A
Northumberland-15	Adopt the most current FIRM maps and FIS as they become available.	Removed	This is a requirement, not a mitigation action goal.	N/A
Northumberland-16	Share with FEMA any new technical or scientific data that may result in map revisions within six months of creation or identification of new data.	Removed	This is a requirement, not a mitigation action goal.	N/A
Northumberland-17	Assist with local floodplain determinations and maintain a record of approved changes to the local Floodplain.	Altered	Added “property protection” to project types.	N/A
Northumberland-18	Adopt or maintain a floodplain management ordinance that at a minimum regulates the following: Issue permits for All proposed developments in the SFHA, Obtain, review, and utilize any base flood elevation and Floodway data, and require BFE data for subdivisions proposals and other development proposals	Altered	Action has been initiated and is ongoing. Portions moved to complete and ongoing portion retained.	Document and maintain records of elevation data that document lowest floor elevation for new or substantially improved structures.

	larger than 50 lots or 5 acres; Identify measures to keep all new and substantially improved construction reasonably safe from flood to or above the Base Flood Elevation (BFE), including anchoring , using flood resistant materials, designing, or locating utilities, and service facilities to prevent water damage; Document and maintain records of elevation data that document lowest floor elevation for new or substantially improved structures.			
Northumberland-19	Enforce the ordinance by monitoring compliance and taking remedial action to correct violations.	Removed	This is a requirement, not a mitigation action goal,	N/A
Northumberland-21	Educate community members about the availability and value of flood insurance.	Removed	County is not responsible for availability of flood insurance, and education is included in the new education and outreach action goal.	N/A
Northumberland-22	Provide general assistance to community members relating to insurance issues.	Removed	County is not responsible for availability of flood insurance, and education is included in the new education and outreach action goal.	N/A
Northumberland-23	Support mitigation projects that will result in protection of public or private property from	Altered	Cleaned up language and streamlined the	Support mitigation projects that conform to the requirements of the HMA program in

	natural hazards. Eligible projects include but are not limited to 1. Acquisition of flood prone property 2. Elevation of flood prone structures 3. Minor structural flood control projects 4. Relocation of structures from hazard prone areas 5. Retrofitting of existing buildings, facilities and infrastructure 6. Retrofitting of existing buildings and facilities for shelters 7. Critical infrastructure protection measures 8. Stormwater management improvements 9. Advanced warning systems and hazard gauging systems (weather radios, reverse-911, stream gauges, I-flows) 10. Targeted hazard education 11. wastewater and water supply system hardening and mitigation.		purpose of this action.	terms of eligibility for participation and projects.
Northumberland-24	Integrate mitigation plan requirements and actions into other appropriate planning mechanisms such as comprehensive, and capital improvement plans.	Altered	Integrated resiliency and changed priority to MEDIUM.	Integrate mitigation plan requirements and actions into other appropriate planning mechanisms such as comprehensive and resiliency plans, and capital improvement plans.
Northumberland-25	Maintain an Emergency Notification System for citizens (Code Red) which upon voluntary subscription, will notify if an NWS severe weather alert is activated within the County.	Removed	Completed	N/A
Northumberland-NEW	N/A	NEW	Created a new all-encompassing education and outreach action goal. Note: This is a CRS qualifying activity.	Expand upon current and create new public outreach activities. Utilize the jurisdiction's website to advise citizens and visitors of local natural hazard risks, encourage citizen-based mitigation efforts and disaster preparation. Consider creating a "Program for Public Information" (PPI) Committee to assist with educating, distribution, and management.

				(*PPI is a suggestion under Activity 322 in the CRS Manual). Boost increased exposure and awareness to visitors, tourists, and part-time residents.
Northumberland-NEW	N/A	NEW	NEW	Seek further improvements to hazard mitigation elements that will enable the community to become eligible for CRS participation.
Northumberland-NEW	N/A	NEW	New mitigation action created from RAFT Scorecard recommendations.	Develop a resident emergency preparedness plan that identifies risks and needs, including knowledge of water safety.
Mitigation Action #	**2017 Action**	**Change Type**	**Reason for Change**	**2023 Action**
Richmond-1	Support mitigation projects that will result in protection of public or private property from natural hazards. Eligible projects include but are not limited to 1. Acquisition of flood prone property 2. Elevation of flood prone structures 3. Minor structural flood control projects 4. Relocation of structures from hazard prone areas 5. Retrofitting of existing buildings, facilities and infrastructure 6. Retrofitting of existing buildings and facilities for shelters 7. Critical infrastructure protection measures 8. Stormwater management improvements 9. Advanced warning systems and hazard gauging systems (weather radios, reverse-911, stream gauges, I-flows) 10. Targeted hazard education 11. wastewater and water supply system hardening and mitigation.	Altered	Cleaned up language and streamlined the purpose of this action.	Support mitigation projects that conform to the requirements of the HMA program in terms of eligibility for participation and projects.

Richmond-2	Integrate mitigation plan requirements and actions into other appropriate planning mechanisms such as comprehensive, and capital improvement plans.	Altered	Integrated resiliency.	Integrate mitigation plan requirements and actions into other appropriate planning mechanisms such as comprehensive and resiliency plans, and capital improvement plans.
Richmond-3	Consider implementing a wetlands acquisition and /or restoration program.	Altered	Expanded and clarified intent.	Engage in a wetlands acquisition and /or restoration program with Wetlands Watch and other conservation partners.
Richmond-4	Encourage waterfront property owners in existing communities to consider multi-parcel shoreline protection strategies before they pursue individual approaches.	Altered	Clarified wording	Encourage waterfront property owners in existing communities to consider community-based multi-parcel shoreline protection strategies before they pursue individual approaches.
Richmond-5	Work with VDOT to evaluate at-risk roads and implement mitigation measures (e.g., elevation, redesign).	Removed	Not a County level responsibility but VDOT's.	N/A
Richmond-6	Seek training opportunities for staff to enhance GIS ability emergency management needs.			Continue to seek training opportunities for staff to enhance current GIS capabilities within the jurisdiction.
Richmond-7	Evaluate the floodplain manager's roles and responsibilities in each local jurisdiction.	Removed	This is a requirement, not a mitigation action goal.	N/A
Richmond-8	Identify means to coordinate, collect and store damage assessment data in GIS format for each natural hazard event that causes death, injury, and/or property damage.	Removed	Completed	N/A
Richmond-9	Evaluate the potential costs versus benefits of implementing a freeboard requirement for all new structures within the 100-year floodplain.	Removed	Completed	N/A
Richmond-10	Investigate implementation of cumulative damage provision as part of Floodplain ordinance.	Removed	This is a requirement, not a mitigation action goal.	N/A

Richmond-11	Share with FEMA any new technical or scientific data that may result in map revisions within six months of creation or identification of new data.	Removed	This is a requirement, not a mitigation action goal.	N/A
Richmond-12	Adopt or maintain a floodplain management ordinance that at a minimum regulates the following: Issue permits for All proposed developments in the SFHA, Obtain, review, and utilize any base flood elevation and Floodway data, and require BFE data for subdivisions proposals and other development proposals larger than 50 lots or 5 acres; Identify measures to keep all new and substantially improved construction reasonably safe from flood to or above the Base Flood Elevation (BFE), including anchoring, using flood resistant materials, designing, or locating utilities, and service facilities to prevent water damage; Document and maintain records of elevation data that document lowest floor elevation for new or substantially improved structures.	Altered	Action has been initiated and is ongoing. Portions moved to complete and ongoing portion retained.	Document and maintain records of elevation data that document lowest floor elevation for new or substantially improved structures.
Richmond-13	Enforce the ordinance by monitoring compliance and taking remedial action to correct violations.	Removed	This is a requirement, not a mitigation action goal.	N/A
Richmond-14	Inform community property owners about changes to the FIRM that may impact their insurance rates.	Removed	This is a requirement, not a mitigation action goal.	N/A
Richmond-15	Provide general assistance to community members relating to insurance issues.	Removed	County is not responsible for availability of flood insurance, and education is included in the new education and	N/A

			outreach action goal.	
Richmond-NEW	N/A	NEW	Created a new all-encompassing education and outreach action goal. Note: This is a CRS qualifying activity.	Expand upon current and create new public outreach activities. Utilize the jurisdiction's website to advise citizens and visitors of local natural hazard risks, encourage citizen-based mitigation efforts and disaster preparation. Consider creating a "Program for Public Information" (PPI) Committee to assist with educating, distribution, and management. (*PPI is a suggestion under Activity 322 in the CRS Manual). Boost increased exposure and awareness to visitors, tourists, and part-time residents.
Richmond-NEW	N/A	NEW	New mitigation action created from RAFT Scorecard recommendations.	Develop a resident emergency preparedness plan that identifies risks and needs, including knowledge of water safety.
Richmond-NEW	N/A	NEW	New mitigation action created from RAFT Scorecard recommendations.	Identify funding for non-CIP coastal resilience projects, including priority needs of vulnerable populations.
Mitigation Action #	**2017 Action**	**Change Type**	**Reason for Change**	**2023 Action**
Warsaw-1	Support mitigation projects that will result in protection of public or private property from natural hazards. Eligible projects include but are not limited to 1. Acquisition of flood prone property 2. Elevation of flood prone structures 3. Minor structural flood control projects 4. Relocation of structures from hazard prone areas	Altered	Cleaned up language and streamlined the purpose of this action.	Support mitigation projects that conform to the requirements of the HMA program in terms of eligibility for participation and projects.

	5. Retrofitting of existing buildings, facilities and infrastructure 6. Retrofitting of existing buildings and facilities for shelters 7. Critical infrastructure protection measures 8. Stormwater management improvements 9. Advanced warning systems and hazard gauging systems (weather radios, reverse-911, stream gauges, I-flows) 10. Targeted hazard education 11. wastewater and water supply system hardening and mitigation.			
Warsaw-2	Integrate mitigation plan requirements and actions into other appropriate planning mechanisms such as comprehensive, and capital improvement plans.	Altered	Integrated resiliency.	Integrate mitigation plan requirements and actions into other appropriate planning mechanisms such as comprehensive and resiliency plans, and capital improvement plans.
Warsaw-NEW	N/A	NEW	Created a new all-encompassing education and outreach action goal. Note: This is a CRS qualifying activity.	Expand upon current and create new public outreach activities. Utilize the jurisdiction's website to advise citizens and visitors of local natural hazard risks, encourage citizen-based mitigation efforts and disaster preparation. Consider creating a "Program for Public Information" (PPI) Committee to assist with educating, distribution, and management. (*PPI is a suggestion under Activity 322 in the CRS Manual). Boost increased exposure and awareness to visitors, tourists, and part-time residents.
Warsaw-NEW	N/A	NEW	New mitigation action created from RAFT Scorecard recommendations.	Seek funding for and implement early warning signals/systems/emergency warning tools for residents (especially vulnerable populations).

Warsaw-NEW	N/A	NEW	New mitigation action created from RAFT Scorecard recommendations.	Develop a resident emergency preparedness plan that identifies risks and needs, including knowledge of water safety.
Mitigation Action #	**2017 Action**	**Change Type**	**Reason for Change**	**2023 Action**
Westmoreland - 1	Incorporate hazard mitigation techniques into new community facilities to minimize damages.	Altered	Updated wording and integrated with other actions of the same intent.	Research and incorporate additional mitigation techniques into community spaces that will further protect flood zones, increase green-space, and improve stormwater drainage capacity, discouraging items such as impermeable surfaces, the disturbance of natural vegetation, or penetration into the floodplains with any structural development not meant to assist in retaining landforms.
Westmoreland -3	Identify existing flood prone structures that may benefit from mitigation measures such as elevation.	Removed	Integrated with action #4	N/A
Westmoreland -4	Evaluate built-upon areas within the floodplain or along the high erosion risk shoreline for possible relocation and/or acquisition. Throughout the Northern Neck for possible relocation and/or buy-out.	Altered	Clarified wording and updated with integration of action #3	Evaluate built-upon areas within the floodplain or along the high erosion risk shoreline for possible relocation and/or acquisition targeting FEMA's Repetitive Loss Properties.
Westmoreland -5	Identify funding opportunities to replace vulnerable or undersized culvert stream crossing with bridges or larger culverts to reduce food hazards.	Removed	Completed	N/A
Westmoreland -6	Work with VDOT to evaluate at-risk roads and implement mitigation measures (e.g., elevation, redesign)	Removed	This is VDOT's responsibility, not an action for the county.	N/A
Westmoreland -7	Initiate discussion with private utility companies to incorporate mitigation measures into new and	Removed	Not a county responsibility.	N/A

	existing development and any infrastructure repairs.			
Westmoreland -8	Identify training opportunities for staff to enhance ability to use GIS for emergency management needs.	Altered	Initiated and ongoing – updated to reflect.	Continue to upgrade and expand the current GIS capabilities, training, and resources throughout the community.
Westmoreland -9	Identify means to coordinate, collect and store damage assessment data in GIS format for each natural hazard event that causes death, injury, or property damage.	Removed.	Completed and ongoing actions are integrated in other actions.	N/A
Westmoreland -10	Consider participating in FEMA's Community Rating System (CRS).	Altered	Updated to be more applicable to current community situation.	Seek further improvements to hazard mitigation elements that will enable the community to become eligible for CRS participation.
Westmoreland -11	Continue to enforce zoning and building codes to prevent construction within the floodplain.	Removed	This is a requirement, not a mitigation action goal.	N/A
Westmoreland -12	Review and revise, if required, existing Subdivision Ordinances to include hazard mitigation-related development criteria to regulate the location and construction of buildings and other infrastructure in known hazard areas.	Removed	This is a requirement, not a mitigation action goal.	N/A
Westmoreland -13	Evaluate the potential costs versus benefits of continuing the freeboard requirement for all new structures within the 100-year floodplain.	Removed	This is a requirement, not a mitigation action goal.	N/A
Westmoreland -14	Encourage the purchase of flood and/or sewer back-up insurance.	Removed	County is not responsible for availability of flood insurance, and education is included in the new education and outreach action goal.	N/A

Westmoreland -15	Educate residents about flood insurance and ICC (Increased Cost of Compliance) Coverage.	Removed	County is not responsible for availability of flood insurance, and education is included in the new education and outreach action goal.	N/A
Westmoreland -16	Prepare an advisory pamphlet and distribute to occupants of housing units or businesses known to be in the floodplain advising them of the potential hazards in the area and of evacuation plans in the event of an emergency.	Removed	New education and outreach action goal created.	N/A
Westmoreland -17	Maintain a voluntary agreement with FEMA to participate in the NFIP	Removed	This is a requirement, not a mitigation action goal.	N/A
Westmoreland -18	Maintain a publicly available copy of the effective Flood Insurance Rate Map (FIRM) and Flood Insurance Study (FIS), Support local requests for map updates when available.	Removed	This is a requirement, not a mitigation action goal.	N/A
Westmoreland -19	Adopt the most current DFIRM or FIRM and FIS as they become available.	Removed	This is a requirement, not a mitigation action goal.	N/A
Westmoreland -20	Share with FEMA any new technical or scientific data that may result in map revisions within six months of creation or identification of new data.	Removed	This is a requirement, not a mitigation action goal.	N/A
Westmoreland -21	Assist with local floodplain determinations and maintain a record of approved changes to the local Floodplain.	Removed	This is a requirement, not a mitigation action goal.	N/A

Westmoreland -22	Adopt or maintain a floodplain management ordinance that at a minimum regulates the following: Issue permits for All proposed developments in the SFHA, Obtain, review, and utilize any base flood elevation and Floodway data, and require BFE data for subdivisions proposals and other development proposals larger than 50 lots or 5 acres; Identify measures to keep all new and substantially improved construction reasonably safe from flood to or above the Base Flood Elevation (BFE), including anchoring, using flood resistant materials, designing, or locating utilities, and service facilities to prevent water damage; Document and maintain records of elevation data that document lowest floor elevation for new or substantially improved structures.	Altered	Action has been initiated and is ongoing. Portions moved to complete and ongoing portion retained.	Document and maintain records of elevation data that document lowest floor elevation for new or substantially improved structures.
Westmoreland -23	Enforce the ordinance by monitoring compliance and taking remedial action to correct violations.	Removed	This is a requirement, not a mitigation action goal.	N/A
Westmoreland -24	Consider adoption of activities that extend beyond the minimum requirements, including those identified for participation in the Community Rating System, freeboard, prohibition of production or storage of chemicals in SFHA, prohibition or certain types of structures such as: hospitals, nursing homes, jails, prohibition of certain types of residential housing such as manufactured homes, and finally floodplain ordinances, that prohibit any new residential or non-residential structures in the SFHA.	Removed	Not an applicable action to the County currently.	N/A
Westmoreland -25	Educate community members about the availability and value of flood insurance.	Removed	County is not responsible for availability of flood insurance, and	N/A

			education is included in the new education and outreach action goal.	
Westmoreland-26	Inform community property owners about changes to the DFIRM/FIRM that may impact their insurance rates.	Removed	This is a requirement, not a mitigation action goal.	N/A
Westmoreland-27	Support mitigation projects that will result in protection of public or private property from natural hazards. Eligible projects include but are not limited to 1. Acquisition of flood prone property 2. Elevation of flood prone structures 3. Minor structural flood control projects 4. Relocation of structures from hazard prone areas 5. Retrofitting of existing buildings, facilities and infrastructure 6. Retrofitting of existing buildings and facilities for shelters 7. Critical infrastructure protection measures 8. Stormwater management improvements 9. Advanced warning systems and hazard gauging systems (weather radios, reverse-911, stream gauges, I-flows) 10. Targeted hazard education 11. wastewater and water supply system hardening and mitigation.	Altered	Cleaned up language and streamlined the purpose of this action.	Support mitigation projects that conform to the requirements of the HMA program in terms of eligibility for participation and projects.
Westmoreland-28	Integrate mitigation plan requirements and actions into other appropriate planning mechanisms such as comprehensive, and capital improvement plans.	Altered	Integrated resiliency.	Integrate mitigation plan requirements and actions into other appropriate planning mechanisms such as comprehensive and resiliency plans, and capital improvement plans.

Westmoreland-29	Evaluate mitigation funding programs to seek a solution to and funding sources to plans with a focus to the Stratford Hall area erosion and cliff failure issues.	Altered	Clarified intent	Seek funding sources to build nature-based shoreline stabilization strategies. Continue best management practices in shoreline erosion prevention, and mandate that new subdivisions require coordinated shoreline protection plans with specific attention to the Stratford Hall area erosion and cliff failure issues.
Westmoreland-30	Work with VDOT and the Town of Colonial Beach to seek ingress and egress access issue solutions.	Removed	VDOT's responsibility, not the County.	N/A
Westmoreland-NEW	N/A	NEW	New mitigation action created from RAFT Scorecard recommendations.	Develop a resident emergency preparedness plan that identifies risks and needs, including knowledge of water safety.
Westmoreland-NEW	N/A	NEW	New action goal.	Continue to upgrade and expand the current GIS capabilities, training, and resources throughout the community.
Westmoreland-NEW	N/A	NEW	Created a new all-encompassing education and outreach action goal. Note: This is a CRS qualifying activity.	Expand upon current and create new public outreach activities. Utilize the jurisdiction's website to advise citizens and visitors of local natural hazard risks, encourage citizen-based mitigation efforts and disaster preparation. Consider creating a "Program for Public Information" (PPI) Committee to assist with educating, distribution, and management. (*PPI is a suggestion under Activity 322 in the CRS Manual). Boost increased exposure and awareness to visitors, tourists, and part-time residents.
Westmoreland-New	N/A	NEW	New mitigation action created from HHPD section and recognition of	Seek education and funding to initiate a program that will organize investigations and risk assessments that will utilize FEMA's risk prioritization methodology to define the HHPDs within the Region.

			HHPD in jurisdiction	
Mitigation Action #	**2017 Action**	**Change Type**	**Reason for Change**	**2023 Action**
Colonial Beach-1	Increase enforcement and education regarding the tie down of propane and other fuel tanks	Removed	Tank security is mandated by the fuel companies and education is integrated into new education and outreach action goal.	N/A
Colonial Beach-2	Evaluate exiting storm water system to determine if it is adequate for existing (or future) flood Hazards.	Removed	Completed	N/A
Colonial Beach-3	Develop and implement a ditch program consisting of routine inspections and subsequent debris removal.	Altered	Altered and updated to include initiation and integrate other actions with similar intent.	Expand upon the stormwater management program consisting of routine inspections and subsequent debris removal and consider additions of culverts where applicable.
Colonial Beach-4	Identify program of corrective actions to shoreline protection measures.	Altered	Updated and expanded to integrate actions with similar intent.	Identify program of corrective actions to improve shoreline preservation and protection measures.
Colonial Beach-5	Develop a detailed building inventory for all structures in the jurisdiction, which catalogues information such as value of the structure, contents, age, location (latitude and longitude), etc.	Removed	Completed	N/A
Colonial Beach-6	Continue to enforce zoning and building codes to prevent construction within the floodplain.	Removed	This a requirement, not a mitigation action goal.	N/A

Colonial Beach-7	Include an assessment and associated mapping of the jurisdiction's vulnerability to location specific hazards and make appropriate recommendations for the use of these hazard areas in the next comprehensive plan.	Removed	Removed, this would be accomplished during the stormwater management study.	N/A
Colonial Beach-8	Investigate using non-conforming or substantial damage provision to require hazard retrofitting of existing development.	Removing	This is an ordinance, not a mitigation action goal.	N/A
Colonial Beach-9	Publicize the location of local shelters and emergency phone numbers. Include a map of shelters in local phonebooks or on county websites.	Removed	Integrated into the new education and outreach action goal.	N/A
Colonial Beach-10	Encourage the purchase and training on the use of NOAA radios. Provide NOAA radios to public facilities.	Removed	Not an applicable action to the town currently.	N/A
Colonial Beach-11	Investigate, develop, or enhance a regional public notification system such as low power FM or AM radio.	Removed	Outdated action goal, no longer applicable.	N/A
Colonial Beach-13	Maintain a voluntary agreement with FEMA to participate in the NFIP	Removed	This is a requirement, not a mitigation action goal.	N/A
Colonial Beach-14	Maintain a publicly available copy of the effective Flood Insurance Rate Map (FIRM) and Flood Insurance Study (FIS), Support local requests for map updates when available.	Removed	This is a requirement, not a mitigation action goal.	N/A
Colonial Beach-15	Adopt the most current FIRM or FIRM and FIS as they become available.	Removed	This is a requirement, not a mitigation action goal.	N/A
Colonial Beach-16	Share with FEMA any new technical or scientific data that may result in map revisions within six months of creation or identification of new data.	Removed	This is a requirement, not a	N/A

			mitigation action goal.	
Colonial Beach-17	Assist with local floodplain determinations and maintain a record of approved changes to the local Floodplain.	Removed	Obsolete with FEMA's 2.0 tool.	N/A
Colonial Beach-18	Adopt or maintain a floodplain management ordinance that at a minimum regulates the following: Issue permits for All proposed developments in the SFHA, Obtain, review, and utilize any base flood elevation and Floodway data, and require BFE data for subdivisions proposals and other development proposals larger than 50 lots or 5 acres; Identify measures to keep all new and substantially improved construction reasonably safe from flood to or above the Base Flood Elevation (BFE), including anchoring, using flood resistant materials, designing, or locating utilities, and service facilities to prevent water damage; Document and maintain records of elevation data that document lowest floor elevation for new or substantially improved structures.	Altered	Action has been initiated and is ongoing. Portions moved to complete and ongoing portion retained.	Document and maintain records of elevation data that document lowest floor elevation for new or substantially improved structures.
Colonial Beach-19	Enforce the ordinance by monitoring compliance and taking remedial action to correct violations.	Removed	This is a requirement, not a mitigation action goal.	N/A
Colonial Beach-21	Educate community members about the availability and value of flood insurance.	Removed	County is not responsible for availability of flood insurance, and education is included in the new education and outreach action goal.	N/A

Colonial Beach-22	Inform community property owners about changes to the FIRM that may impact their insurance rates.	Removed	County is not responsible for availability of flood insurance, and education is included in the new education and outreach action goal.	N/A
Colonial Beach-23	Provide general assistance to community members relating to insurance issues.	Removed	County is not responsible for availability of flood insurance, and education is included in the new education and outreach action goal.	N/A
Colonial Beach-24	Support mitigation projects that will result in protection of public or private property from natural hazards. Eligible projects include but are not limited to 1. Acquisition of flood prone property 2. Elevation of flood prone structures 3. Minor structural flood control projects 4. Relocation of structures from hazard prone areas 5. Retrofitting of existing buildings, facilities, and infrastructure 6. Retrofitting of existing buildings and facilities for shelters 7. Critical infrastructure protection measures 8. Stormwater management improvements 9. Advanced warning systems and hazard gauging systems (weather radios, reverse-911, stream gauges, I-flows)	Altered	Cleaned up language and streamlined the purpose of this action.	Support mitigation projects that conform to the requirements of the HMA program in terms of eligibility for participation and projects.

	10. Targeted hazard education 11. wastewater and water supply system hardening and mitigation.			
Colonial Beach-25	Integrate mitigation plan requirements and actions into other appropriate planning mechanisms such as comprehensive, and capital improvement plans.	Altered	Integrated resiliency.	Integrate mitigation plan requirements and actions into other appropriate planning mechanisms such as comprehensive and resiliency plans, and capital improvement plans.
Colonial Beach-NEW	N/A	NEW	New mitigation action created from RAFT Scorecard recommendations.	Develop a resident and visitor emergency preparedness plan that identifies risks and needs, including knowledge of water safety.
Colonial Beach-NEW	N/A	NEW	New mitigation action created from RAFT Scorecard recommendations.	Seek funding for and implement early warning signals/systems/emergency warning tools for residents (especially vulnerable populations.
Mitigation Action #	**2017 Action**	**Change Type**	**Reason for Change**	**2023 Action**
Montross-1	Support mitigation projects that will result in protection of public or private property from natural hazards. Eligible projects include but are not limited to 1. Acquisition of flood prone property 2. Elevation of flood prone structures 3. Minor structural flood control projects 4. Relocation of structures from hazard prone areas 5. Retrofitting of existing buildings, facilities and infrastructure 6. Retrofitting of existing buildings and facilities for shelters 7. Critical infrastructure protection measures 8. Stormwater management improvements	Altered	Cleaned up language and streamlined the purpose of this action.	Support mitigation projects that conform to the requirements of the HMA program in terms of eligibility for participation and projects.

	9. Advanced warning systems and hazard gauging systems (weather radios, reverse-911, stream gauges, I-flows) 10. Targeted hazard education 1 1. wastewater and water supply system hardening and mitigation.			
Montross-3	Develop a Continuity of Operations Plan.	Removed	This a planning mechanism goal not a mitigation action goal.	N/A
Montross-4	Consider participating in FEMA"s community rating system. (CRS)	Updated.	Reworded to encompass the next actions towards possible CRS. Some actions have been completed or initiated since the 2017 update.	Seek further improvements to hazard mitigation elements that enable the community to become eligible for CRS participation.
Montross-5	Encourage the purchase of flood and/or sewer back-up insurance.	Removed	County is not responsible for availability of flood insurance, and education is included in the new education and outreach action goal.	N/A
Montross-6	Encourage the purchase and training on the use of NOAA radios. Provide NOAA radios to public facilities.	Removed	Not an applicable action for the town currently.	N/A
Montross-7	Maintain a voluntary agreement with FEMA to participate in the NFIP	Removed	This is a requirement, not a mitigation action goal.	N/A

Montross-8	Maintain a publicly available copy of the effective Flood Insurance Rate Map (FIRM) and Flood Insurance Study (FIS), Support local requests for map updates when available.	Removed	This is a requirement, not a mitigation action goal.	N/A
Montross-9	Adopt the most current DFIRM or FIRM and FIS as they become available.	Removed	This is a requirement, not a mitigation action goal.	N/A
Montross-10	Share with FEMA any new technical or scientific data that may result in map revisions within six months of creation or identification of new data.	Removed	This is a requirement, not a mitigation action goal.	N/A
Montross-11	Assist with local floodplain determinations and maintain a record of approved changes to the local floodplain.	Removed	Obsolete with FEMA's 2.0 tool.	N/A
Montross-12	Adopt or maintain a floodplain management ordinance that at a minimum regulates the following: Issue permits for All proposed developments in the SFHA, Obtain, review, and utilize any base flood elevation and Floodway data, and require BFE data for subdivisions proposals and other development proposals larger than 50 lots or 5 acres; Identify measures to keep All new and substantially improved construction reasonably safe from flood to or above the base flood elevation (BFE), including anchoring , using flood resistant materials, designing or locating utilities, and service facilities to prevent water damage; Document and maintain records of elevation data that document lowest floor elevation for new or substantially improved structures.	Removed	Completed	N/A
Montross-13	Enforce the ordinance by monitoring compliance and taking remedial action to correct violations.	Removed	This is a requirement, not a mitigation action goal.	N/A

Montross-15	Educate community members about the availability and value of flood insurance.	Removed	County is not responsible for availability of flood insurance, and education is included in the new education and outreach action goal.	N/A
Montross-16	Inform community property owners about changes to the DFIRM/FIRM that may impact their insurance rates.	Removed	County is not responsible for availability of flood insurance, and education is included in the new education and outreach action goal.	N/A
Montross-17	Provide general assistance to community members relating to insurance issues.	Removed	County is not responsible for availability of flood insurance, and education is included in the new education and outreach action goal.	N/A
Montross-NEW	N/A	NEW	Created new education and outreach mitigation goal.	Expand upon current and create new public outreach activities. Utilize the jurisdiction's website to advise citizens and visitors of local natural hazard risks, encourage citizen-based mitigation efforts and disaster preparation. Consider creating a "Program for Public Information" (PPI) Committee to assist with educating, distribution, and management. (*PPI is a suggestion under Activity 322 in the

				CRS Manual). Boost increased exposure and awareness to visitors, tourists, and part-time residents.
Montross-NEW	N/A	NEW	New mitigation action created from RAFT Scorecard recommendations.	Develop a resident emergency preparedness plan that identifies risks and needs, including knowledge of water safety.

Appendix F
Adoption Resolutions

A RESOLUTION
ADOPTED BY THE LANCASTER COUNTY BOARD OF SUPERVISORS

2023 NORTHERN NECK REGIONAL HAZARD MITIGATION PLAN ADOPTION RESOLUTION

WHEREAS, the municipalities of the Northern Neck Region are most vulnerable to natural and human-made hazards which may result in loss of life and property, economic hardship, and threats to public health and safety, and

WHEREAS, Section 322 of the Disaster Mitigation Act of 2000 (DMA 2000) requires state and local governments to develop and submit for approval to FEMA, a mitigation plan that outlines processes for identifying their respective natural hazards, risks, and vulnerabilities, and

WHEREAS, Lancaster County acknowledges the requirements of Section 322 of DMA 2000 to have an approved Hazard Mitigation Plan as a prerequisite to receiving post-disaster Hazard Mitigation Grant Program funds, and

WHEREAS, the *2023 Northern Neck Regional Hazard Mitigation Plan* has been developed by the Northern Neck Planning District Planning Commission in cooperation with other Commonwealth agencies, local municipal officials, and the citizens of the Northern Neck Region, and

WHEREAS, a public involvement process consistent with the requirements of DMA 2000 was conducted to develop the *2023 Northern Neck Regional Hazard Mitigation Plan*, and

WHEREAS, Representatives from Lancaster County actively engaged and participated in the development of the *2023 Northern Neck Regional Hazard Mitigation Plan*, attended meetings of the Hazard Mitigation Planning Committee, completed a Capabilities Assessment for Lancaster County, and provided recommendations for mitigation activities, and

WHEREAS, the *2023 Northern Neck Regional Hazard Mitigation Plan* recommends mitigation activities that will reduce losses to life and property affected by both natural and human-made hazards that face the County and its municipal governments,

NOW THEREFORE BE IT RESOLVED by the Lancaster County Board of Supervisors that:

1. The *2023 Northern Neck Regional Hazard Mitigation Plan* is hereby adopted as the official Hazard Mitigation Plan of the Northern Neck Planning District Commission and the County of Lancaster, and

2. The respective officials and agencies identified in the implementation strategy of the *2023 Northern Neck Regional Hazard Mitigation Plan* are hereby directed to implement the recommended activities assigned to them.

Adopted this 30th day of March 2023

Attest: _____

Don G. Gill
County Administrator

Town of Irvington

2023 Northern Neck Regional Hazard Mitigation Plan
Adoption Resolution
Resolution No. 2023 - 03

WHEREAS, the municipalities of the Northern Neck Region are most vulnerable to natural and human-made hazards which may result in loss of life and property, economic hardship, and threats to public health and safety, and

WHEREAS, Section 322 of the Disaster Mitigation Act of 2000 (DMA 2000) requires state and local governments to develop and submit for approval to FEMA a mitigation plan that outlines processes for identifying their respective natural hazards, risks, and vulnerabilities, and

WHEREAS, the Town of Irvington acknowledges the requirements of Section 322 of DMA 2000 to have an approved Hazard Mitigation Plan as a prerequisite to receiving post-disaster Hazard Mitigation Grant Program funds, and

WHEREAS, the 2023 Northern Neck Regional Hazard Mitigation Plan has been developed by the Northern Neck Planning District Planning Commission in cooperation with other Commonwealth agencies, local municipal officials, and the citizens of the Northern Neck Region, and

WHEREAS, a public involvement process consistent with the requirements of DMA 2000 was conducted to develop the 2023 Northern Neck Regional Hazard Mitigation Plan, and

WHEREAS, Representatives from the Town of Irvington actively engaged and participated in the development of the 2023 Northern Neck Regional Hazard Mitigation Plan, attended meetings of the Hazard Mitigation Planning Committee, completed a Capabilities Assessment for the Town of Irvington, and provided recommendations for mitigation activities, and

WHEREAS, the 2023 Northern Neck Regional Hazard Mitigation Plan recommends mitigation activities that will reduce losses to life and property affected by both natural and human-made hazards that face the County and its municipal governments,

NOW THEREFORE BE IT RESOLVED by the governing body for the Town of Irvington that:

1. The 2023 Northern Neck Regional Hazard Mitigation Plan is hereby adopted as the official Hazard Mitigation Plan of the Northern Neck Planning District Commission and the Town of Irvington, and

2. The respective officials and agencies identified in the implementation strategy of 2023 Northern Neck Regional Hazard Mitigation Plan are hereby directed to implement the recommended activities assigned to them.

ADOPTED, this 13th day of April, 2023. The vote was 6-0-0

ATTEST: In accordance with the Town Council of the Town of Irvington

Julie W. Harris, Mayor — Laurel S. Taylor, Clerk

Town of Kilmarnock

Resolution No. 2023-004
2023 Northern Neck Regional Hazard Mitigation Plan
Adoption Resolution

WHEREAS, the municipalities of the Northern Neck Region are most vulnerable to natural and human-made hazards which may result in loss of life and property, economic hardship, and threats to public health and safety, and

WHEREAS, Section 322 of the Disaster Mitigation Act of 2000 (DMA 2000) requires state and local governments to develop and submit for approval to FEMA a mitigation plan that outlines processes for identifying their respective natural hazards, risks, and vulnerabilities, and

WHEREAS, the Town of Kilmarnock acknowledges the requirements of Section 322 of DMA 2000 to have an approved Hazard Mitigation Plan as a prerequisite to receiving post-disaster Hazard Mitigation Grant Program funds, and

WHEREAS, the 2023 Northern Neck Regional Hazard Mitigation Plan has been developed by the Northern Neck Planning District Planning Commission in cooperation with other Commonwealth agencies, local municipal officials, and the citizens of the Northern Neck Region, and

WHEREAS, a public involvement process consistent with the requirements of DMA 2000 was conducted to develop the 2023 Northern Neck Regional Hazard Mitigation Plan, and

WHEREAS, Representatives from the Town of Kilmarnock actively engaged and participated in the development of the 2023 Northern Neck Regional Hazard Mitigation Plan, attended meetings of the Hazard Mitigation Planning Committee, completed a Capabilities Assessment for the Town of Kilmarnock , and provided recommendations for mitigation activities, and

WHEREAS, the 2023 Northern Neck Regional Hazard Mitigation Plan recommends mitigation activities that will reduce losses to life and property affected by both natural and human-made hazards that face the County and its municipal governments,

NOW THEREFORE BE IT RESOLVED by the governing body for the Town of Kilmarnock that:

1. The 2023 Northern Neck Regional Hazard Mitigation Plan is hereby adopted as the official Hazard Mitigation Plan of the Northern Neck Planning District Commission and the Town of Kilmarnock, and

1 North Main Street P.O. Box 1357 Kilmarnock VA 22482-1357
804-435-1552 FAX 804-435-1587 kilmarnockva.com

2. The respective officials and agencies identified in the implementation strategy of 2023 Northern Neck Regional Hazard Mitigation Plan are hereby directed to implement the recommended activities assigned to them.

IT IS FURTHER RESOLVED THAT RESOLUTION 2023-004 IS EFFECTIVE UPON PASSAGE.

Certification

I, Shawn Donahue, Mayor of Kilmarnock, do hereby certify that the foregoing Resolution 2023-004 was adopted at the Council meeting on April 17, 2023 by the following vote:

	YEA	NAY	ABSENT
Kylie Abbott	X		
Mike Bedell	X		
Rebecca Tebbs Nunn	X		
Dr. Curtis Smith	X		
Les Spivey	X		
Tom Watson	X		

Shawn Donahue, Mayor

Attest: Cindy Balderson

Cindy Balderson, Clerk

Town of White Stone
2023 Northern Neck Regional Hazard Mitigation Plan
Adoption Resolution

WHEREAS, the municipalities of the Northern Neck Region are most vulnerable to natural and human-made hazards which may result in loss of life and property, economic hardship, and threats to public health and safety, and

WHEREAS, Section 322 of the Disaster Mitigation Act of 2000 (DMA 2000) requires state and local governments to develop and submit for approval to FEMA a mitigation plan that outlines processes for identifying their respective natural hazards, risks, and vulnerabilities, and

WHEREAS, the Town of White Stone acknowledges the requirements of Section 322 of DMA 2000 to have an approved Hazard Mitigation Plan as a prerequisite to receiving post-disaster Hazard Mitigation Grant Program funds, and

WHEREAS, the 2023 Northern Neck Regional Hazard Mitigation Plan has been developed by the Northern Neck Planning District Planning Commission in cooperation with other Commonwealth agencies, local municipal officials, and the citizens of the Northern Neck Region, and

WHEREAS, a public involvement process consistent with the requirements of DMA 2000 was conducted to develop the 2023 Northern Neck Regional Hazard Mitigation Plan, and

WHEREAS, Representatives from the Town of White Stone actively engaged and participated in the development of the 2023 Northern Neck Regional Hazard Mitigation Plan, attended meetings of the Hazard Mitigation Planning Committee, completed a Capabilities Assessment for the Town of White Stone, and provided recommendations for mitigation activities, and

WHEREAS, the 2023 Northern Neck Regional Hazard Mitigation Plan recommends mitigation activities that will reduce losses to life and property affected by both natural and human-made hazards that face the County and its municipal governments,

NOW THEREFORE BE IT RESOLVED by the Town Council of the Town of White Stone that:

1. The 2023 Northern Neck Regional Hazard Mitigation Plan is hereby adopted as the official Hazard Mitigation Plan of the Northern Neck Planning District Commission and the Town of White Stone and;

2. The respective officials and agencies identified in the implementation strategy of 2023 Northern Neck Regional Hazard Mitigation Plan are hereby directed to implement the recommended activities assigned to them.

ADOPTED, this 6th day of April, 2023

ATTEST: Patrick G. Freer Town Manager

Affirmed By Melinda George - Town Clerk

Northumberland County

2023 Northern Neck Regional Hazard Mitigation Plan
Adoption Resolution

WHEREAS, the municipalities of the Northern Neck Region are most vulnerable to natural and human-made hazards which may result in loss of life and property, economic hardship, and threats to public health and safety, and

WHEREAS, Section 322 of the Disaster Mitigation Act of 2000 (DMA 2000) requires state and local governments to develop and submit for approval to FEMA a mitigation plan that outlines processes for identifying their respective natural hazards, risks, and vulnerabilities, and

WHEREAS, Northumberland County acknowledges the requirements of Section 322 of DMA 2000 to have an approved Hazard Mitigation Plan as a prerequisite to receiving post-disaster Hazard Mitigation Grant Program funds, and

WHEREAS, the 2023 Northern Neck Regional Hazard Mitigation Plan has been developed by the Northern Neck Planning District Planning Commission in cooperation with other Commonwealth agencies, local municipal officials, and the citizens of the Northern Neck Region, and

WHEREAS, a public involvement process consistent with the requirements of DMA 2000 was conducted to develop the 2023 Northern Neck Regional Hazard Mitigation Plan, and

WHEREAS, Representatives from Northumberland County actively engaged and participated in the development of the 2023 Northern Neck Regional Hazard Mitigation Plan, attended meetings of the Hazard Mitigation Planning Committee, completed a Capabilities Assessment for the County, and provided recommendations for mitigation activities, and

WHEREAS, the 2023 Northern Neck Regional Hazard Mitigation Plan recommends mitigation activities that will reduce losses to life and property affected by both natural and human-made hazards that face the County and its municipal governments,

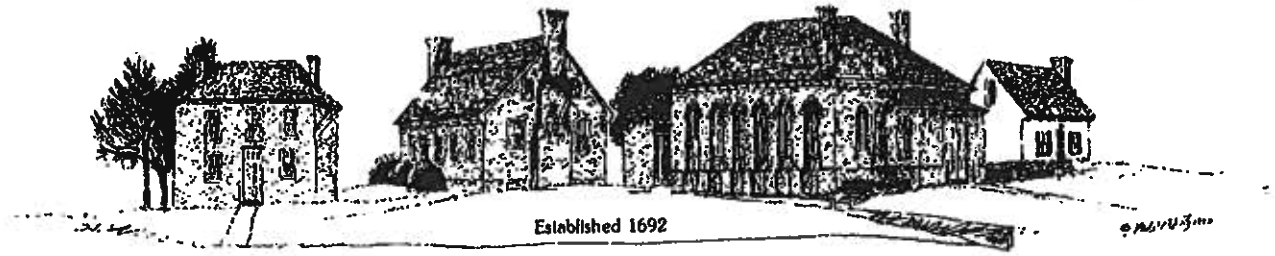
NOW THEREFORE BE IT RESOLVED by the governing body for Northumberland County that:

1. The 2023 Northern Neck Regional Hazard Mitigation Plan is hereby adopted as the official Hazard Mitigation Plan of the Northern Neck Planning District Commission and Northumberland County, and

2. The respective officials and agencies identified in the implementation strategy of 2023 Northern Neck Regional Hazard Mitigation Plan are hereby directed to implement the recommended activities assigned to them.

ADOPTED, this 13th day of April, 2023

Richard F. Haynie, Chairman
Northumberland Board of Supervisors



Richmond County Board of Supervisors

101 Court Circle P.O. Box 1000 Warsaw, Virginia 22572 (804) 333-3415 FAX (804) 333-3408 www.co.richmond.va.us

Richmond County
2023 Northern Neck Regional Hazard Mitigation Plan
Adoption Resolution

WHEREAS, the municipalities of the Northern Neck Region are most vulnerable to natural and human-made hazards which may result in loss of life and property, economic hardship, and threats to public health and safety, and

WHEREAS, Section 322 of the Disaster Mitigation Act of 2000 (DMA 2000) requires state and local governments to develop and submit for approval to FEMA a mitigation plan that outlines processes for identifying their respective natural hazards, risks, and vulnerabilities, and

WHEREAS, Richmond County acknowledges the requirements of Section 322 of DMA 2000 to have an approved Hazard Mitigation Plan as a prerequisite to receiving post-disaster Hazard Mitigation Grant Program funds, and

WHEREAS, the 2023 Northern Neck Regional Hazard Mitigation Plan has been developed by the Northern Neck Planning District Planning Commission in cooperation with other Commonwealth agencies, local municipal officials, and the citizens of the Northern Neck Region, and

WHEREAS, a public involvement process consistent with the requirements of DMA 2000 was conducted to develop the 2023 Northern Neck Regional Hazard Mitigation Plan, and

WHEREAS, Representatives from Richmond County actively engaged and participated in the development of the 2023 Northern Neck Regional Hazard Mitigation Plan, attended meetings of the Hazard Mitigation Planning Committee, completed a Capabilities Assessment for Richmond County, and provided recommendations for mitigation activities, and

WHEREAS, the 2023 Northern Neck Regional Hazard Mitigation Plan recommends mitigation activities that will reduce losses to life and property affected by both natural and human-made hazards that face the County and its municipal governments,

NOW THEREFORE BE IT RESOLVED by the governing body of Richmond County that:

1. The 2023 Northern Neck Regional Hazard Mitigation Plan is hereby adopted as the official Hazard Mitigation Plan of the Northern Neck Planning District Commission and Richmond County, and

2. The respective officials and agencies identified in the implementation strategy of 2023 Northern Neck Regional Hazard Mitigation Plan are hereby directed to implement the recommended activities assigned to them.

ADOPTED, this 13th day of April, 2023

F. Lee Sanders, Chairman
Richmond County Board of Supervisors

DATE: April 13, 2023

2023 Northern Neck Regional Hazard Mitigation Plan Adoption Resolution

WHEREAS, the municipalities of the Northern Neck Region are most vulnerable to natural and human-made hazards which may result in loss of life and property, economic hardship, and threats to public health and safety, and

WHEREAS, Section 322 of the Disaster Mitigation Act of 2000 (DMA 2000) requires state and local governments to develop and submit for approval to FEMA a mitigation plan that outlines processes for identifying their respective natural hazards, risks, and vulnerabilities, and

WHEREAS, the Town of Warsaw acknowledges the requirements of Section 322 of DMA 2000 to have an approved Hazard Mitigation Plan as a prerequisite to receiving post-disaster Hazard Mitigation Grant Program funds, and

WHEREAS, the 2023 Northern Neck Regional Hazard Mitigation Plan has been developed by the Northern Neck Planning District Planning Commission in cooperation with other Commonwealth agencies, local municipal officials, and the citizens of the Northern Neck Region, and

WHEREAS, a public involvement process consistent with the requirements of DMA 2000 was conducted to develop the 2023 Northern Neck Regional Hazard Mitigation Plan, and

WHEREAS, Representatives from the Town of Warsaw actively engaged and participated in the development of the 2023 Northern Neck Regional Hazard Mitigation Plan, attended meetings of the Hazard Mitigation Planning Committee, completed a Capabilities Assessment for the Town of Warsaw, and provided recommendations for mitigation activities, and

WHEREAS, the 2023 Northern Neck Regional Hazard Mitigation Plan recommends mitigation activities that will reduce losses to life and property affected by both natural and human-made hazards that face the County and its municipal governments,

NOW THEREFORE BE IT RESOLVED by the governing body for the Town of Warsaw that:

1. The 2023 Northern Neck Regional Hazard Mitigation Plan is hereby adopted as the official Hazard Mitigation Plan of the Northern Neck Planning District Commission and the Town of Warsaw, and

2. The respective officials and agencies identified in the implementation strategy of 2023 Northern Neck Regional Hazard Mitigation Plan are hereby directed to implement the recommended activities assigned to them.

PASSED AND ADOPTED this 13 day of April, 2023 by the following vote:
Ayes: 7 Nays: 0

TOWN OF WARSAW

BY: _____
Mayor

ATTESTED BY:

BY: Julia Blackley-Rice
Town Clerk

NORM RISAVI
County Administrator
P. O. BOX 1000
MONTROSS, VIRGINIA 22520-1000
PHONE: 804/493-0130
FAX: 804/493-0134
E-mail: nrisavi@westmoreland-county.org
Web Page: www.westmoreland-county.org

WESTMORELAND COUNTY, VIRGINIA

Board of Supervisors

MONTROSS, VIRGINIA 22520-1000

Westmoreland County, VA
2023 Northern Neck Regional Hazard Mitigation Plan
Adoption Resolution

WHEREAS, the municipalities of the Northern Neck Region are most vulnerable to natural and human-made hazards which may result in loss of life and property, economic hardship, and threats to public health and safety; and

WHEREAS, Section 322 of the Disaster Mitigation Act of 2000 (DMA 2000) requires state and local governments to develop and submit for approval to FEMA a mitigation plan that outlines processes for identifying their respective natural hazards, risks, and vulnerabilities; and

WHEREAS, Westmoreland County acknowledges the requirements of Section 322 of DMA 2000 to have an approved Hazard Mitigation Plan as a prerequisite to receiving post-disaster Hazard Mitigation Grant Program funds; and

WHEREAS, the 2023 Northern Neck Regional Hazard Mitigation Plan has been developed by the Northern Neck Planning District Commission in cooperation with other Commonwealth agencies, local municipal officials, and the citizens of the Northern Neck Region; and

WHEREAS, a public involvement process consistent with the requirements of DMA 2000 was conducted to develop the 2023 Northern Neck Regional Hazard Mitigation Plan; and

WHEREAS, Representatives from Westmoreland County actively engaged and participated in the development of the 2023 Northern Neck Regional Hazard Mitigation Plan, attended meetings of the Hazard Mitigation Planning Committee, completed a Capabilities Assessment for Westmoreland County, and provided recommendations for mitigation activities; and

WHEREAS, the 2023 Northern Neck Regional Hazard Mitigation Plan recommends mitigation activities that will reduce losses to life and property affected by both natural and human-made hazards that face the County and its municipal governments.

NOW THEREFORE BE IT RESOLVED by the governing body for the County of Westmoreland that:

1. The 2023 Northern Neck Regional Hazard Mitigation Plan is hereby adopted as the official Hazard Mitigation Plan of the Northern Neck Planning District Commission and Westmoreland County; and

2. The respective officials and agencies identified in the implementation strategy of the 2023 Northern Neck Regional Hazard Mitigation Plan are hereby directed to implement the recommended activities assigned to them.

ADOPTED, this 10th day of April, 2023

Darryl E. Fisher

Darryl E. Fisher, Chairman
Westmoreland County Board of Supervisors

ATTEST: _____
Board of Supervisor's Clerk

Town of Colonial Beach

2023 Northern Neck Regional Hazard Mitigation Plan
Adoption Resolution
Resolution No. 16-23

WHEREAS, the municipalities of the Northern Neck Region are most vulnerable to natural and human-made hazards which may result in loss of life and property, economic hardship, and threats to public health and safety, and

WHEREAS, Section 322 of the Disaster Mitigation Act of 2000 (DMA 2000) requires state and local governments to develop and submit for approval to FEMA a mitigation plan that outlines processes for identifying their respective natural hazards, risks, and vulnerabilities, and

WHEREAS, Town of Colonial Beach acknowledges the requirements of Section 322 of DMA 2000 to have an approved Hazard Mitigation Plan as a prerequisite to receiving post-disaster Hazard Mitigation Grant Program funds, and

WHEREAS, the 2023 Northern Neck Regional Hazard Mitigation Plan has been developed by the Northern Neck Planning District Planning Commission in cooperation with other Commonwealth agencies, local municipal officials, and the citizens of the Northern Neck Region, and

WHEREAS, a public involvement process consistent with the requirements of DMA 2000 was conducted to develop the 2023 Northern Neck Regional Hazard Mitigation Plan, and

WHEREAS, Representatives from Town of Colonial Beach actively engaged and participated in the development of the 2023 Northern Neck Regional Hazard Mitigation Plan, attended meetings of the Hazard Mitigation Planning Committee, completed a Capabilities Assessment for Town of Colonial Beach, and provided recommendations for mitigation activities, and

WHEREAS, the 2023 Northern Neck Regional Hazard Mitigation Plan recommends mitigation activities that will reduce losses to life and property affected by both natural and human-made hazards that face the County and its municipal governments,

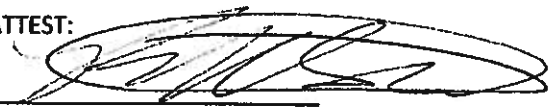
NOW THEREFORE BE IT RESOLVED by the governing body for the Town of Colonial Beach that:

1. The 2023 Northern Neck Regional Hazard Mitigation Plan is hereby adopted as the official Hazard Mitigation Plan of the Northern Neck Planning District Commission and Town of Colonial Beach, and

2. The respective officials and agencies identified in the implementation strategy of 2023 Northern Neck Regional Hazard Mitigation Plan are hereby directed to implement the recommended activities assigned to them.

ADOPTED, this 5th day of April, 2023

ATTEST:



Robin M. Schick,
Mayor, Town of Colonial Beach

TOWN HALL
15869 KINGS HIGHWAY
P.O. BOX 126
MONTROSS, VA 22520
PH. (804)493-9623
FAX (804)493-9036
E-mail: townofmontross@verizon.net

Town Manager
FRANCINE G. TAYLOR

Est. 1852

Town of Montross

~ ADOPTED RESOLUTION ~

2023 Northern Neck Regional Hazard Mitigation Plan

WHEREAS, the municipalities of the Northern Neck Region are most vulnerable to natural and human-made hazards which may result in loss of life and property, economic hardship, and threats to public health and safety, and

WHEREAS, Section 322 of the Disaster Mitigation Act of 2000 (DMA 2000) requires state and local governments to develop and submit for approval to FEMA a mitigation plan that outlines processes for identifying their respective natural hazards, risks, and vulnerabilities, and

WHEREAS, the Town of Montross acknowledges the requirements of Section 322 of DMA 2000 to have an approved Hazard Mitigation Plan as a prerequisite to receiving post-disaster Hazard Mitigation Grant Program funds, and

WHEREAS, the 2023 Northern Neck Regional Hazard Mitigation Plan has been developed by the Northern Neck Planning District Planning Commission in cooperation with other Commonwealth agencies, local municipal officials, and the citizens of the Northern Neck Region, and

WHEREAS, a public involvement process consistent with the requirements of DMA 2000 was conducted to develop the 2023 Northern Neck Regional Hazard Mitigation Plan, and

WHEREAS, Representatives from the Town of Montross actively engaged and participated in the development of the 2023 Northern Neck Regional Hazard Mitigation Plan, attended meetings of the Hazard Mitigation Planning Committee, completed a Capabilities Assessment for the Town of Montross, and provided recommendations for mitigation activities, and

WHEREAS, the 2023 Northern Neck Regional Hazard Mitigation Plan recommends mitigation activities that will reduce losses to life and property affected by both natural and human-made hazards that face the County and its municipal governments,

NOW THEREFORE BE IT RESOLVED by the governing body for the Town of Montross that:

1. The 2023 Northern Neck Regional Hazard Mitigation Plan is hereby adopted as the official Hazard Mitigation Plan of the Northern Neck Planning District Commission and the Town of Montross, and

2. The respective officials and agencies identified in the implementation strategy of 2023 Northern Neck Regional Hazard Mitigation Plan are hereby directed to implement the recommended activities assigned to them.

ADOPTED, this 25th day of April, 2023

Terry A. Cosgrove

Mayor, Town of Montross

Appendix G
Approval Letters

U.S. Department of Homeland Security
Federal Emergency Management Agency
Region 3

One Independence Mall
615 Chestnut Street, 6th floor
Philadelphia, PA 19106-4404

FEMA

July 21, 2023

The Honorable Don Gill
County Administrator
Lancaster County
8311 Mary Ball Road
Lancaster, Virginia 22503

Community:	Lancaster County, Virginia
PDC:	Northern Neck
Plan Adoption Date:	03/30/2023
Plan Approval Date:	03/30/2023
Plan Expiration Date:	03/29/2028

Dear Administrator Gill:

I am pleased to tell you that FEMA has approved your Hazard Mitigation Plan (HMP). The plan meets the requirements of Title 44, Chapter 1, Section 201.6, of the Code of Federal Regulations (44 CFR 201.6). It addresses the required elements: planning process, risk assessment and hazard identification, mitigation strategy, maintenance and implementation, and adoption.

Your HMP also met the requirements to address all dam risks, based on the Fiscal Year 2022 Rehabilitation of High Hazard Potential Dams (HHPD) Notice of Funding Opportunity.

Participating communities are now eligible for FEMA non-emergency assistance and mitigation grants from the following programs:

- Hazard Mitigation Grant Program (HMGP)
- Building Resilient Infrastructure and Communities (BRIC)
- Flood Mitigation Assistance (FMA)
- HHPD Grant Program

Funding from these programs can be used for qualified mitigation planning and projects that reduce disaster losses and protect life and property from future disasters. Approved HMPs can also earn points under the Community Rating System.

Within 5 years, your community must revise its plan and obtain approval to remain eligible for mitigation grant funding. You should review the plan annually to keep it relevant to the mitigation goals in your community. Please consider the enclosed recommendations to further strengthen your plan during its next update.

I commend you and the planning team for your hard work and continued commitment to building a safer, more resilient community. For questions about your plan or mitigation grant funding, please contact Debbie Messmer, State Hazard Mitigation Officer, at (804) 897-9975.

Sincerely,

Sarah Wolfe, Branch Chief
Floodplain Management and Insurance Branch
FEMA Region 3

Enclosure

cc: Debbie Messmer, State Hazard Mitigation Officer, VDEM
Chris Bruce, All Hazards Planner, Virginia Department of Emergency Management
Jerry W. Davis, Executive Director, Northern Neck Planning District Commission
John Bateman, Regional Planner, Northern Neck Planning District Commission

Region 3 Local Mitigation Plan Review Tool Annex: Recommendations for Improvement

Jurisdiction: Northern Neck PDC	Title of Plan: Northern Neck PDC Hazard Mitigation Plan	Date of Plan: March 2023
	Element A: Planning Process	
☒	Promote open and inclusive public awareness of the hazard mitigation plan. Seek public comment through social media and online outreach- or using what works in the planning area.	
☐	Make an Executive Summary that can be used for outreach. Share it with citizens, elected officials and the media.	
☐	Expand the planning team to include a broad range of stakeholders. These can include the following: • Watershed organizations. • Business owners. • Regional planning councils. • Conservation districts. • Academia. • Utility providers. They can also include any other partners who can help with mitigation implementation and community outreach.	

FEMA

☐	Detail how the plan was prepared and who was involved. Include the following: • Contact information. • Position held by participant. • Methodologies. • Details of how and from whom data were collected. This information will streamline the next update. It will also help you focus on improvements and starting your plan.
☒	Reach out to the local media to increase public knowledge and participation.
☒	Standardize long-term monitoring of hazard-related activities. Add mitigation values to community officials' roles. Keep momentum through engagement during the five-year planning cycle. Share reviews with the state and FEMA for training, funding, and mitigation actions.
☐	Document the annual plan review meetings that should occur over the next five-year planning cycle. You can add sign-in sheets, agendas, meeting minutes, and progress reports to an appendix.
☒	Add the mitigation strategy into current local planning mechanisms; document how this was done. Use the Plan Integration: Linking Local Planning Efforts document to learn how to link local planning mechanisms. You should add the mitigation strategy to the local comprehensive plan. It should inform land use and development.
☐	
☐	
	**Element B: Hazard Identification and Risk Assessment**
☒	Compare National Flood Insurance Program (NFIP) Insurance Policies in Force with insurable structures in the Special Flood Hazard Area (SFHA). This should be done to analyze flood insurance coverage.

☒	Find historic properties and/or cultural resources being added to the plan. Add the following: • A list of team members and stakeholders who participated in the planning process. • The results of the risk assessment and loss estimation. • Mitigation goals that aim to reduce or avoid the effects of hazards. • Mitigation actions that will help the tribe, state, region, or community meet those goals. • Strategies that state how the mitigation actions will be implemented.
☒	Add and document new data you obtain or develop to the next plan update. Mitigation grant applications can use vulnerable structure data (i.e., lowest floor elevation, value, building materials) and similar information. Be sure to document more than one data set (i.e., TEIF vs. Hazus).
☐	Consider using Non-Regulatory Flood Risk Products (NRFRPs). These should help to establish opportunities to speak with local officials. They can help you learn more about specific structures' vulnerabilities within the planning area. They can also point out potential chances for mitigation.
☒	Find gaps or inaccuracies in existing data. These can include natural hazards data, GIS mapping, and research on successful risk reduction methods. Act to fill those gaps. Public agencies are key resources for data and technical information. They include regional planning agencies, geological surveys, forestry divisions, emergency management offices, dam safety agencies, and weather service offices. They can be at the regional, state, and federal government levels. Online resources can also be used for hazard data. The National Climatic Data Center (part of NOAA) is one such resource.
☐	Give more detailed citations for the data sources used for tables, figures, and assessments. These sources should inform the risk and vulnerability analyses. This will not only validate the assessment; it will also make the next hazard mitigation plan update easier.
☒	Learn the potential effects of future conditions. These could be changes in population, land use, weather, and natural disaster frequency and severity. Include details about how changing conditions could affect long-term community resilience.
☐	Consider profiling more hazards. These could be based on the state hazard mitigation plan or other identified risks.
☒	Amend using more updated dam data to more clearly identify risk and mitigation opportunities.

☐	
	**Element C: Mitigation Strategy**
☐	Detail how each community manages the NFIP. Each should comply with the local floodplain ordinance. Each floodplain manager should fill out the NFIP survey. The survey will help identify how their communities comply with floodplain requirements and regulations.
☒	Increase community-level interactions and risk-based discussions. Improve descriptions and connections between the outcome of the risk assessment/vulnerability analysis with NRFRPs and the mitigation strategy. Content should flow from problem identification (risk/vulnerability) to mitigation strategy (goals/objectives/actions).
☐	Use the four overarching hazard mitigation techniques. They are: • Local Plans and Regulations. • Structure and Infrastructure. • Natural Systems Protection. • Education and Awareness. Make sure the mitigation action plan includes actions that fall under all four groups. This will help you achieve a more robust mitigation strategy.
☐	Detail why some mitigation actions could not be done. Reasons could relate to funding, staffing, politics, and more. This helps document obstacles to successful implementation.
☐	
☐	

Element D: Plan Review, Evaluation, and Implementation

☐	Use the Five-Year Planning Wheel. It reflects the regular development, implementation and enhancement of your hazard mitigation plan.
☒	Submit annual progress reviews. Plan talks with the state and FEMA.
☒	Review the Local Mitigation Planning Policy Guide. It will show you programmatic changes since the approval of your plan.
☒	Reach out to your State Hazard Mitigation Planner 36 months from your plan's expiration date. That way, you can start the scope of work for your next update.
☒	Seek out an opportunity with the State/FEMA to participate in a Plan Implementation and Grants Development (PIGD) Workshop over the next 5 years.
☐	
☐	

	Additional Comments
☐	
☐	
☐	
☐	
☐	
☐	

U.S. Department of Homeland Security
Federal Emergency Management Agency
Region 3

One Independence Mall
615 Chestnut Street, 6th floor
Philadelphia, PA 19106-4404

FEMA

July 21, 2023

The Honorable Julie Harris
Mayor
Town of Irvington
P.O. Box 174
Irvington, Virginia 22480

Community:	Town of Irvington, Lancster County, Virginia
PDC:	Northern Neck
Plan Adoption Date:	04/13/2023
Plan Approval Date:	03/30/2023
Plan Expiration Date:	03/29/2028

Dear Mayor Harris:

I am pleased to tell you that FEMA has approved your Hazard Mitigation Plan (HMP). The plan meets the requirements of Title 44, Chapter 1, Section 201.6, of the Code of Federal Regulations (44 CFR 201.6). It addresses the required elements: planning process, risk assessment and hazard identification, mitigation strategy, maintenance and implementation, and adoption.

Your HMP also met the requirements to address all dam risks, based on the Fiscal Year 2022 Rehabilitation of High Hazard Potential Dams (HHPD) Notice of Funding Opportunity.

Participating communities are now eligible for FEMA non-emergency assistance and mitigation grants from the following programs:

- Hazard Mitigation Grant Program (HMGP)
- Building Resilient Infrastructure and Communities (BRIC)
- Flood Mitigation Assistance (FMA)
- HHPD Grant Program

Funding from these programs can be used for qualified mitigation planning and projects that reduce disaster losses and protect life and property from future disasters. Approved HMPs can also earn points under the Community Rating System.

Within 5 years, your community must revise its plan and obtain approval to remain eligible for mitigation grant funding. You should review the plan annually to keep it relevant to the mitigation goals in your community. Please consider the enclosed recommendations to further strengthen your plan during its next update.

I commend you and the planning team for your hard work and continued commitment to building a safer, more resilient community. For questions about your plan or mitigation grant funding, please contact Debbie Messmer, State Hazard Mitigation Officer, at (804) 897-9975.

Sincerely,

Sarah Wolfe, Branch Chief
Floodplain Management and Insurance Branch
FEMA Region 3

Enclosure

cc: Debbie Messmer, State Hazard Mitigation Officer, VDEM
Chris Bruce, All Hazards Planner, Virginia Department of Emergency Management
Jerry W. Davis, Executive Director, Northern Neck Planning District Commission
John Bateman, Regional Planner, Northern Neck Planning District Commission

Region 3 Local Mitigation Plan Review Tool Annex: Recommendations for Improvement

Jurisdiction: Northern Neck PDC	Title of Plan: Northern Neck PDC Hazard Mitigation Plan	Date of Plan: March 2023
	Element A: Planning Process	
☒	Promote open and inclusive public awareness of the hazard mitigation plan. Seek public comment through social media and online outreach- or using what works in the planning area.	
☐	Make an Executive Summary that can be used for outreach. Share it with citizens, elected officials and the media.	
☐	Expand the planning team to include a broad range of stakeholders. These can include the following: • Watershed organizations. • Business owners. • Regional planning councils. • Conservation districts. • Academia. • Utility providers. They can also include any other partners who can help with mitigation implementation and community outreach.	

FEMA

☐	Detail how the plan was prepared and who was involved. Include the following: • Contact information. • Position held by participant. • Methodologies. • Details of how and from whom data were collected. This information will streamline the next update. It will also help you focus on improvements and starting your plan.
☒	Reach out to the local media to increase public knowledge and participation.
☒	Standardize long-term monitoring of hazard-related activities. Add mitigation values to community officials' roles. Keep momentum through engagement during the five-year planning cycle. Share reviews with the state and FEMA for training, funding, and mitigation actions.
☐	Document the annual plan review meetings that should occur over the next five-year planning cycle. You can add sign-in sheets, agendas, meeting minutes, and progress reports to an appendix.
☒	Add the mitigation strategy into current local planning mechanisms; document how this was done. Use the Plan Integration: Linking Local Planning Efforts document to learn how to link local planning mechanisms. You should add the mitigation strategy to the local comprehensive plan. It should inform land use and development.
☐	
☐	
	**Element B: Hazard Identification and Risk Assessment**
☒	Compare National Flood Insurance Program (NFIP) Insurance Policies in Force with insurable structures in the Special Flood Hazard Area (SFHA). This should be done to analyze flood insurance coverage.

☒	Find historic properties and/or cultural resources being added to the plan. Add the following: • A list of team members and stakeholders who participated in the planning process. • The results of the risk assessment and loss estimation. • Mitigation goals that aim to reduce or avoid the effects of hazards. • Mitigation actions that will help the tribe, state, region, or community meet those goals. • Strategies that state how the mitigation actions will be implemented.
☒	Add and document new data you obtain or develop to the next plan update. Mitigation grant applications can use vulnerable structure data (i.e., lowest floor elevation, value, building materials) and similar information. Be sure to document more than one data set (i.e., TEIF vs. Hazus).
☐	Consider using Non-Regulatory Flood Risk Products (NRFRPs). These should help to establish opportunities to speak with local officials. They can help you learn more about specific structures' vulnerabilities within the planning area. They can also point out potential chances for mitigation.
☒	Find gaps or inaccuracies in existing data. These can include natural hazards data, GIS mapping, and research on successful risk reduction methods. Act to fill those gaps. Public agencies are key resources for data and technical information. They include regional planning agencies, geological surveys, forestry divisions, emergency management offices, dam safety agencies, and weather service offices. They can be at the regional, state, and federal government levels. Online resources can also be used for hazard data. The National Climatic Data Center (part of NOAA) is one such resource.
☐	Give more detailed citations for the data sources used for tables, figures, and assessments. These sources should inform the risk and vulnerability analyses. This will not only validate the assessment; it will also make the next hazard mitigation plan update easier.
☒	Learn the potential effects of future conditions. These could be changes in population, land use, weather, and natural disaster frequency and severity. Include details about how changing conditions could affect long-term community resilience.
☐	Consider profiling more hazards. These could be based on the state hazard mitigation plan or other identified risks.
☒	Amend using more updated dam data to more clearly identify risk and mitigation opportunities.

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	**Element C: Mitigation Strategy**
☐	Detail how each community manages the NFIP. Each should comply with the local floodplain ordinance. Each floodplain manager should fill out the NFIP survey. The survey will help identify how their communities comply with floodplain requirements and regulations.
☒	Increase community-level interactions and risk-based discussions. Improve descriptions and connections between the outcome of the risk assessment/vulnerability analysis with NRFRPs and the mitigation strategy. Content should flow from problem identification (risk/vulnerability) to mitigation strategy (goals/objectives/actions).
☐	Use the four overarching hazard mitigation techniques. They are: • Local Plans and Regulations. • Structure and Infrastructure. • Natural Systems Protection. • Education and Awareness. Make sure the mitigation action plan includes actions that fall under all four groups. This will help you achieve a more robust mitigation strategy.
☐	Detail why some mitigation actions could not be done. Reasons could relate to funding, staffing, politics, and more. This helps document obstacles to successful implementation.
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Element D: Plan Review, Evaluation, and Implementation

☐	Use the Five-Year Planning Wheel. It reflects the regular development, implementation and enhancement of your hazard mitigation plan.
☒	Submit annual progress reviews. Plan talks with the state and FEMA.
☒	Review the Local Mitigation Planning Policy Guide. It will show you programmatic changes since the approval of your plan.
☒	Reach out to your State Hazard Mitigation Planner 36 months from your plan's expiration date. That way, you can start the scope of work for your next update.
☒	Seek out an opportunity with the State/FEMA to participate in a Plan Implementation and Grants Development (PIGD) Workshop over the next 5 years.
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	Additional Comments
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U.S. Department of Homeland Security
Federal Emergency Management Agency
Region 3

One Independence Mall
615 Chestnut Street, 6th floor
Philadelphia, PA 19106-4404

FEMA

July 21, 2023

The Honorable Shawn Donahue
Mayor
Town of Kilmarnock
P.O. Box 1357
Kilmarnock, Virginia 22482

Community:	Town of Kilmarnock, Lancaster and Northumberland County, Virginia
PDC:	Northern Neck
Plan Adoption Date:	04/17/2023
Plan Approval Date:	03/30/2023
Plan Expiration Date:	03/29/2028

Dear Mayor Donahue:

I am pleased to tell you that FEMA has approved your Hazard Mitigation Plan (HMP). The plan meets the requirements of Title 44, Chapter 1, Section 201.6, of the Code of Federal Regulations (44 CFR 201.6). It addresses the required elements: planning process, risk assessment and hazard identification, mitigation strategy, maintenance and implementation, and adoption.

Your HMP also met the requirements to address all dam risks, based on the Fiscal Year 2022 Rehabilitation of High Hazard Potential Dams (HHPD) Notice of Funding Opportunity.

Participating communities are now eligible for FEMA non-emergency assistance and mitigation grants from the following programs:

- Hazard Mitigation Grant Program (HMGP)
- Building Resilient Infrastructure and Communities (BRIC)
- Flood Mitigation Assistance (FMA)
- HHPD Grant Program

Funding from these programs can be used for qualified mitigation planning and projects that reduce disaster losses and protect life and property from future disasters. Approved HMPs can also earn points under the Community Rating System.

Within 5 years, your community must revise its plan and obtain approval to remain eligible for mitigation grant funding. You should review the plan annually to keep it relevant to the mitigation goals in your community. Please consider the enclosed recommendations to further strengthen your plan during its next update.

I commend you and the planning team for your hard work and continued commitment to building a safer, more resilient community. For questions about your plan or mitigation grant funding, please contact Debbie Messmer, State Hazard Mitigation Officer, at (804) 897-9975.

Sincerely,

Sarah Wolfe, Branch Chief
Floodplain Management and Insurance Branch
FEMA Region 3

Enclosure

cc: Debbie Messmer, State Hazard Mitigation Officer, VDEM
Chris Bruce, All Hazards Planner, Virginia Department of Emergency Management
Jerry W. Davis, Executive Director, Northern Neck Planning District Commission
John Bateman, Regional Planner, Northern Neck Planning District Commission

Region 3 Local Mitigation Plan Review Tool Annex: Recommendations for Improvement

Jurisdiction: Northern Neck PDC	Title of Plan: Northern Neck PDC Hazard Mitigation Plan	Date of Plan: March 2023
	Element A: Planning Process	
☒	Promote open and inclusive public awareness of the hazard mitigation plan. Seek public comment through social media and online outreach- or using what works in the planning area.	
☐	Make an Executive Summary that can be used for outreach. Share it with citizens, elected officials and the media.	
☐	Expand the planning team to include a broad range of stakeholders. These can include the following: • Watershed organizations. • Business owners. • Regional planning councils. • Conservation districts. • Academia. • Utility providers. They can also include any other partners who can help with mitigation implementation and community outreach.	

FEMA

☐	Detail how the plan was prepared and who was involved. Include the following: • Contact information. • Position held by participant. • Methodologies. • Details of how and from whom data were collected. This information will streamline the next update. It will also help you focus on improvements and starting your plan.
☒	Reach out to the local media to increase public knowledge and participation.
☒	Standardize long-term monitoring of hazard-related activities. Add mitigation values to community officials' roles. Keep momentum through engagement during the five-year planning cycle. Share reviews with the state and FEMA for training, funding, and mitigation actions.
☐	Document the annual plan review meetings that should occur over the next five-year planning cycle. You can add sign-in sheets, agendas, meeting minutes, and progress reports to an appendix.
☒	Add the mitigation strategy into current local planning mechanisms; document how this was done. Use the Plan Integration: Linking Local Planning Efforts document to learn how to link local planning mechanisms. You should add the mitigation strategy to the local comprehensive plan. It should inform land use and development.
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	**Element B: Hazard Identification and Risk Assessment**
☒	Compare National Flood Insurance Program (NFIP) Insurance Policies in Force with insurable structures in the Special Flood Hazard Area (SFHA). This should be done to analyze flood insurance coverage.

☒	Find historic properties and/or cultural resources being added to the plan. Add the following: • A list of team members and stakeholders who participated in the planning process. • The results of the risk assessment and loss estimation. • Mitigation goals that aim to reduce or avoid the effects of hazards. • Mitigation actions that will help the tribe, state, region, or community meet those goals. • Strategies that state how the mitigation actions will be implemented.
☒	Add and document new data you obtain or develop to the next plan update. Mitigation grant applications can use vulnerable structure data (i.e., lowest floor elevation, value, building materials) and similar information. Be sure to document more than one data set (i.e., TEIF vs. Hazus).
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Element D: Plan Review, Evaluation, and Implementation

☐	Use the Five-Year Planning Wheel. It reflects the regular development, implementation and enhancement of your hazard mitigation plan.
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U.S. Department of Homeland Security
Federal Emergency Management Agency
Region 3

One Independence Mall
615 Chestnut Street, 6th floor
Philadelphia, PA 19106-4404

FEMA

July 21, 2023

The Honorable William Hubbard
Mayor
Town of White Stone
P.O. Box 11
White Stone, Virginia 22578

Community:	Town of White Stone, Lancaster County, Virginia
PDC:	Northern Neck
Plan Adoption Date:	04/06/2023
Plan Approval Date:	03/30/2023
Plan Expiration Date:	03/29/2028

Dear Mayor Hubbard:

I am pleased to tell you that FEMA has approved your Hazard Mitigation Plan (HMP). The plan meets the requirements of Title 44, Chapter 1, Section 201.6, of the Code of Federal Regulations (44 CFR 201.6). It addresses the required elements: planning process, risk assessment and hazard identification, mitigation strategy, maintenance and implementation, and adoption.

Your HMP also met the requirements to address all dam risks, based on the Fiscal Year 2022 Rehabilitation of High Hazard Potential Dams (HHPD) Notice of Funding Opportunity.

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Within 5 years, your community must revise its plan and obtain approval to remain eligible for mitigation grant funding. You should review the plan annually to keep it relevant to the mitigation goals in your community. Please consider the enclosed recommendations to further strengthen your plan during its next update.

I commend you and the planning team for your hard work and continued commitment to building a safer, more resilient community. For questions about your plan or mitigation grant funding, please contact Debbie Messmer, State Hazard Mitigation Officer, at (804) 897-9975.

Sincerely,

Sarah Wolfe, Branch Chief
Floodplain Management and Insurance Branch
FEMA Region 3

Enclosure

cc: Debbie Messmer, State Hazard Mitigation Officer, VDEM
Chris Bruce, All Hazards Planner, Virginia Department of Emergency Management
Jerry W. Davis, Executive Director, Northern Neck Planning District Commission
John Bateman, Regional Planner, Northern Neck Planning District Commission

Region 3 Local Mitigation Plan Review Tool Annex: Recommendations for Improvement

Jurisdiction: Northern Neck PDC	Title of Plan: Northern Neck PDC Hazard Mitigation Plan	Date of Plan: March 2023
	Element A: Planning Process	
☒	Promote open and inclusive public awareness of the hazard mitigation plan. Seek public comment through social media and online outreach- or using what works in the planning area.	
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FEMA

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	**Element B: Hazard Identification and Risk Assessment**
☒	Compare National Flood Insurance Program (NFIP) Insurance Policies in Force with insurable structures in the Special Flood Hazard Area (SFHA). This should be done to analyze flood insurance coverage.

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Element D: Plan Review, Evaluation, and Implementation

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U.S. Department of Homeland Security
Federal Emergency Management Agency
Region 3

One Independence Mall
615 Chestnut Street, 6th floor
Philadelphia, PA 19106-4404

FEMA

July 21, 2023

The Honorable Richard Haynie
Chair, Board of Supervisors
Northumberland County
P.O. Box 129
Heathsville, Virginia 22473

Community:	Northumberland County, Virginia
PDC:	Northern Neck
Plan Adoption Date:	04/13/2023
Plan Approval Date:	03/30/2023
Plan Expiration Date:	03/29/2028

Dear Chair Haynie:

I am pleased to tell you that FEMA has approved your Hazard Mitigation Plan (HMP). The plan meets the requirements of Title 44, Chapter 1, Section 201.6, of the Code of Federal Regulations (44 CFR 201.6). It addresses the required elements: planning process, risk assessment and hazard identification, mitigation strategy, maintenance and implementation, and adoption.

Your HMP also met the requirements to address all dam risks, based on the Fiscal Year 2022 Rehabilitation of High Hazard Potential Dams (HHPD) Notice of Funding Opportunity.

Participating communities are now eligible for FEMA non-emergency assistance and mitigation grants from the following programs:

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Within 5 years, your community must revise its plan and obtain approval to remain eligible for mitigation grant funding. You should review the plan annually to keep it relevant to the mitigation goals in your community. Please consider the enclosed recommendations to further strengthen your plan during its next update.

I commend you and the planning team for your hard work and continued commitment to building a safer, more resilient community. For questions about your plan or mitigation grant funding, please contact Debbie Messmer, State Hazard Mitigation Officer, at (804) 897-9975.

Sincerely,

Sarah Wolfe, Branch Chief
Floodplain Management and Insurance Branch
FEMA Region 3

Enclosure

cc: Debbie Messmer, State Hazard Mitigation Officer, VDEM
Chris Bruce, All Hazards Planner, Virginia Department of Emergency Management
Jerry W. Davis, Executive Director, Northern Neck Planning District Commission
John Bateman, Regional Planner, Northern Neck Planning District Commission

Region 3 Local Mitigation Plan Review Tool Annex: Recommendations for Improvement

Jurisdiction: Northern Neck PDC	Title of Plan: Northern Neck PDC Hazard Mitigation Plan	Date of Plan: March 2023
	Element A: Planning Process	
☒	Promote open and inclusive public awareness of the hazard mitigation plan. Seek public comment through social media and online outreach- or using what works in the planning area.	
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FEMA

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	**Element B: Hazard Identification and Risk Assessment**
☒	Compare National Flood Insurance Program (NFIP) Insurance Policies in Force with insurable structures in the Special Flood Hazard Area (SFHA). This should be done to analyze flood insurance coverage.

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U.S. Department of Homeland Security
Federal Emergency Management Agency
Region 3

One Independence Mall
615 Chestnut Street, 6th floor
Philadelphia, PA 19106-4404

FEMA

July 21, 2023

The Honorable F. Lee Sanders
Chair, Board of Supervisors
Richmond County
P.O. Box 1000
Warsaw, Virginia 22572

Community:	Richmond County, Virginia
PDC:	Northern Neck
Plan Adoption Date:	04/13/2023
Plan Approval Date:	03/30/2023
Plan Expiration Date:	03/29/2028

Dear Chair Sanders:

I am pleased to tell you that FEMA has approved your Hazard Mitigation Plan (HMP). The plan meets the requirements of Title 44, Chapter 1, Section 201.6, of the Code of Federal Regulations (44 CFR 201.6). It addresses the required elements: planning process, risk assessment and hazard identification, mitigation strategy, maintenance and implementation, and adoption.

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Sincerely,

Sarah Wolfe, Branch Chief
Floodplain Management and Insurance Branch
FEMA Region 3

Enclosure

cc: Debbie Messmer, State Hazard Mitigation Officer, VDEM
Chris Bruce, All Hazards Planner, Virginia Department of Emergency Management
Jerry W. Davis, Executive Director, Northern Neck Planning District Commission
John Bateman, Regional Planner, Northern Neck Planning District Commission

Region 3 Local Mitigation Plan Review Tool Annex: Recommendations for Improvement

Jurisdiction: Northern Neck PDC	Title of Plan: Northern Neck PDC Hazard Mitigation Plan	Date of Plan: March 2023
	Element A: Planning Process	
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	**Element B: Hazard Identification and Risk Assessment**
☒	Compare National Flood Insurance Program (NFIP) Insurance Policies in Force with insurable structures in the Special Flood Hazard Area (SFHA). This should be done to analyze flood insurance coverage.

☒	Find historic properties and/or cultural resources being added to the plan. Add the following: • A list of team members and stakeholders who participated in the planning process. • The results of the risk assessment and loss estimation. • Mitigation goals that aim to reduce or avoid the effects of hazards. • Mitigation actions that will help the tribe, state, region, or community meet those goals. • Strategies that state how the mitigation actions will be implemented.
☒	Add and document new data you obtain or develop to the next plan update. Mitigation grant applications can use vulnerable structure data (i.e., lowest floor elevation, value, building materials) and similar information. Be sure to document more than one data set (i.e., TEIF vs. Hazus).
☐	Consider using Non-Regulatory Flood Risk Products (NRFRPs). These should help to establish opportunities to speak with local officials. They can help you learn more about specific structures' vulnerabilities within the planning area. They can also point out potential chances for mitigation.
☒	Find gaps or inaccuracies in existing data. These can include natural hazards data, GIS mapping, and research on successful risk reduction methods. Act to fill those gaps. Public agencies are key resources for data and technical information. They include regional planning agencies, geological surveys, forestry divisions, emergency management offices, dam safety agencies, and weather service offices. They can be at the regional, state, and federal government levels. Online resources can also be used for hazard data. The National Climatic Data Center (part of NOAA) is one such resource.
☐	Give more detailed citations for the data sources used for tables, figures, and assessments. These sources should inform the risk and vulnerability analyses. This will not only validate the assessment; it will also make the next hazard mitigation plan update easier.
☒	Learn the potential effects of future conditions. These could be changes in population, land use, weather, and natural disaster frequency and severity. Include details about how changing conditions could affect long-term community resilience.
☐	Consider profiling more hazards. These could be based on the state hazard mitigation plan or other identified risks.
☒	Amend using more updated dam data to more clearly identify risk and mitigation opportunities.

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	**Element C: Mitigation Strategy**
☐	Detail how each community manages the NFIP. Each should comply with the local floodplain ordinance. Each floodplain manager should fill out the NFIP survey. The survey will help identify how their communities comply with floodplain requirements and regulations.
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☐	Use the four overarching hazard mitigation techniques. They are: • Local Plans and Regulations. • Structure and Infrastructure. • Natural Systems Protection. • Education and Awareness. Make sure the mitigation action plan includes actions that fall under all four groups. This will help you achieve a more robust mitigation strategy.
☐	Detail why some mitigation actions could not be done. Reasons could relate to funding, staffing, politics, and more. This helps document obstacles to successful implementation.
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Element D: Plan Review, Evaluation, and Implementation

☐	Use the Five-Year Planning Wheel. It reflects the regular development, implementation and enhancement of your hazard mitigation plan.
☒	Submit annual progress reviews. Plan talks with the state and FEMA.
☒	Review the Local Mitigation Planning Policy Guide. It will show you programmatic changes since the approval of your plan.
☒	Reach out to your State Hazard Mitigation Planner 36 months from your plan's expiration date. That way, you can start the scope of work for your next update.
☒	Seek out an opportunity with the State/FEMA to participate in a Plan Implementation and Grants Development (PIGD) Workshop over the next 5 years.
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U.S. Department of Homeland Security
Federal Emergency Management Agency
Region 3

One Independence Mall
615 Chestnut Street, 6th floor
Philadelphia, PA 19106-4404

FEMA

July 21, 2023

The Honorable Randall Phelps
Mayor
Town of Warsaw
P.O. Box 730
Warsaw, Virginia 22572

Community:	Town of Warsaw, Richmond County, Virginia
PDC:	Northern Neck
Plan Adoption Date:	04/13/2023
Plan Approval Date:	03/30/2023
Plan Expiration Date:	03/29/2028

Dear Mayor Phelps:

I am pleased to tell you that FEMA has approved your Hazard Mitigation Plan (HMP). The plan meets the requirements of Title 44, Chapter 1, Section 201.6, of the Code of Federal Regulations (44 CFR 201.6). It addresses the required elements: planning process, risk assessment and hazard identification, mitigation strategy, maintenance and implementation, and adoption.

Your HMP also met the requirements to address all dam risks, based on the Fiscal Year 2022 Rehabilitation of High Hazard Potential Dams (HHPD) Notice of Funding Opportunity.

Participating communities are now eligible for FEMA non-emergency assistance and mitigation grants from the following programs:

- Hazard Mitigation Grant Program (HMGP)
- Building Resilient Infrastructure and Communities (BRIC)
- Flood Mitigation Assistance (FMA)
- HHPD Grant Program

Funding from these programs can be used for qualified mitigation planning and projects that reduce disaster losses and protect life and property from future disasters. Approved HMPs can also earn points under the Community Rating System.

Within 5 years, your community must revise its plan and obtain approval to remain eligible for mitigation grant funding. You should review the plan annually to keep it relevant to the mitigation goals in your community. Please consider the enclosed recommendations to further strengthen your plan during its next update.

I commend you and the planning team for your hard work and continued commitment to building a safer, more resilient community. For questions about your plan or mitigation grant funding, please contact Debbie Messmer, State Hazard Mitigation Officer, at (804) 897-9975.

Sincerely,

Sarah Wolfe, Branch Chief
Floodplain Management and Insurance Branch
FEMA Region 3

Enclosure

cc: Debbie Messmer, State Hazard Mitigation Officer, VDEM
Chris Bruce, All Hazards Planner, Virginia Department of Emergency Management
Jerry W. Davis, Executive Director, Northern Neck Planning District Commission
John Bateman, Regional Planner, Northern Neck Planning District Commission

Region 3 Local Mitigation Plan Review Tool Annex: Recommendations for Improvement

Jurisdiction: Northern Neck PDC	Title of Plan: Northern Neck PDC Hazard Mitigation Plan	Date of Plan: March 2023
	Element A: Planning Process	
☒	Promote open and inclusive public awareness of the hazard mitigation plan. Seek public comment through social media and online outreach- or using what works in the planning area.	
☐	Make an Executive Summary that can be used for outreach. Share it with citizens, elected officials and the media.	
☐	Expand the planning team to include a broad range of stakeholders. These can include the following: • Watershed organizations. • Business owners. • Regional planning councils. • Conservation districts. • Academia. • Utility providers. They can also include any other partners who can help with mitigation implementation and community outreach.	

FEMA

☐	Detail how the plan was prepared and who was involved. Include the following: • Contact information. • Position held by participant. • Methodologies. • Details of how and from whom data were collected. This information will streamline the next update. It will also help you focus on improvements and starting your plan.
☒	Reach out to the local media to increase public knowledge and participation.
☒	Standardize long-term monitoring of hazard-related activities. Add mitigation values to community officials' roles. Keep momentum through engagement during the five-year planning cycle. Share reviews with the state and FEMA for training, funding, and mitigation actions.
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	Additional Comments
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U.S. Department of Homeland Security
Federal Emergency Management Agency
Region 3

One Independence Mall
615 Chestnut Street, 6th floor
Philadelphia, PA 19106-4404

FEMA

July 21, 2023

The Honorable Darryl Fisher
Chair, Board of Supervisors
Westmoreland County
111 Polk Street
Montross, Virginia 22520

Community:	Westmoreland County, Virginia
PDC:	Northern Neck
Plan Adoption Date:	04/10/2023
Plan Approval Date:	03/30/2023
Plan Expiration Date:	03/29/2028

Dear Chair Fisher:

I am pleased to tell you that FEMA has approved your Hazard Mitigation Plan (HMP). The plan meets the requirements of Title 44, Chapter 1, Section 201.6, of the Code of Federal Regulations (44 CFR 201.6). It addresses the required elements: planning process, risk assessment and hazard identification, mitigation strategy, maintenance and implementation, and adoption.

Your HMP also met the requirements to address all dam risks, based on the Fiscal Year 2022 Rehabilitation of High Hazard Potential Dams (HHPD) Notice of Funding Opportunity.

Participating communities are now eligible for FEMA non-emergency assistance and mitigation grants from the following programs:

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Within 5 years, your community must revise its plan and obtain approval to remain eligible for mitigation grant funding. You should review the plan annually to keep it relevant to the mitigation goals in your community. Please consider the enclosed recommendations to further strengthen your plan during its next update.

I commend you and the planning team for your hard work and continued commitment to building a safer, more resilient community. For questions about your plan or mitigation grant funding, please contact Debbie Messmer, State Hazard Mitigation Officer, at (804) 897-9975.

Sincerely,

Sarah Wolfe, Branch Chief
Floodplain Management and Insurance Branch
FEMA Region 3

Enclosure

cc: Debbie Messmer, State Hazard Mitigation Officer, VDEM
Chris Bruce, All Hazards Planner, Virginia Department of Emergency Management
Jerry W. Davis, Executive Director, Northern Neck Planning District Commission
John Bateman, Regional Planner, Northern Neck Planning District Commission

Region 3 Local Mitigation Plan Review Tool Annex: Recommendations for Improvement

Jurisdiction: Northern Neck PDC	Title of Plan: Northern Neck PDC Hazard Mitigation Plan	Date of Plan: March 2023
	Element A: Planning Process	
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FEMA

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U.S. Department of Homeland Security
Federal Emergency Management Agency
Region 3

One Independence Mall
615 Chestnut Street, 6th floor
Philadelphia, PA 19106-4404

FEMA

July 21, 2023

The Honorable Robin Schick
Mayor
Town of Colonial Beach
315 Douglad Avenue
Colonial Beach, Virginia 22443

Community:	Town of Colonial Beach, Westmoreland County, Virginia
PDC:	Northern Neck
Plan Adoption Date:	04/05/2023
Plan Approval Date:	03/30/2023
Plan Expiration Date:	03/29/2028

Dear Mayor Schick:

I am pleased to tell you that FEMA has approved your Hazard Mitigation Plan (HMP). The plan meets the requirements of Title 44, Chapter 1, Section 201.6, of the Code of Federal Regulations (44 CFR 201.6). It addresses the required elements: planning process, risk assessment and hazard identification, mitigation strategy, maintenance and implementation, and adoption.

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I commend you and the planning team for your hard work and continued commitment to building a safer, more resilient community. For questions about your plan or mitigation grant funding, please contact Debbie Messmer, State Hazard Mitigation Officer, at (804) 897-9975.

Sincerely,

Sarah Wolfe, Branch Chief
Floodplain Management and Insurance Branch
FEMA Region 3

Enclosure

cc: Debbie Messmer, State Hazard Mitigation Officer, VDEM
Chris Bruce, All Hazards Planner, Virginia Department of Emergency Management
Jerry W. Davis, Executive Director, Northern Neck Planning District Commission
John Bateman, Regional Planner, Northern Neck Planning District Commission

Region 3 Local Mitigation Plan Review Tool Annex: Recommendations for Improvement

Jurisdiction: Northern Neck PDC	Title of Plan: Northern Neck PDC Hazard Mitigation Plan	Date of Plan: March 2023
	Element A: Planning Process	
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FEMA

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U.S. Department of Homeland Security
Federal Emergency Management Agency
Region 3

One Independence Mall
615 Chestnut Street, 6th floor
Philadelphia, PA 19106-4404

FEMA

July 21, 2023

The Honorable Terry Cosgrove
Mayor
Town of Montross
15869 Kings Highway
Montross, Virginia 22520

Community:	Town of Montross, Westmoreland County, Virginia
PDC:	Northern Neck
Plan Adoption Date:	04/25/2023
Plan Approval Date:	03/30/2023
Plan Expiration Date:	03/29/2028

Dear Mayor Cosgrove:

I am pleased to tell you that FEMA has approved your Hazard Mitigation Plan (HMP). The plan meets the requirements of Title 44, Chapter 1, Section 201.6, of the Code of Federal Regulations (44 CFR 201.6). It addresses the required elements: planning process, risk assessment and hazard identification, mitigation strategy, maintenance and implementation, and adoption.

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Sincerely,

Sarah Wolfe, Branch Chief
Floodplain Management and Insurance Branch
FEMA Region 3

Enclosure

cc: Debbie Messmer, State Hazard Mitigation Officer, VDEM
Chris Bruce, All Hazards Planner, Virginia Department of Emergency Management
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John Bateman, Regional Planner, Northern Neck Planning District Commission

Region 3 Local Mitigation Plan Review Tool Annex: Recommendations for Improvement

Jurisdiction: Northern Neck PDC	Title of Plan: Northern Neck PDC Hazard Mitigation Plan	Date of Plan: March 2023
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☒	Reach out to the local media to increase public knowledge and participation.
☒	Standardize long-term monitoring of hazard-related activities. Add mitigation values to community officials' roles. Keep momentum through engagement during the five-year planning cycle. Share reviews with the state and FEMA for training, funding, and mitigation actions.
☐	Document the annual plan review meetings that should occur over the next five-year planning cycle. You can add sign-in sheets, agendas, meeting minutes, and progress reports to an appendix.
☒	Add the mitigation strategy into current local planning mechanisms; document how this was done. Use the Plan Integration: Linking Local Planning Efforts document to learn how to link local planning mechanisms. You should add the mitigation strategy to the local comprehensive plan. It should inform land use and development.
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	**Element B: Hazard Identification and Risk Assessment**
☒	Compare National Flood Insurance Program (NFIP) Insurance Policies in Force with insurable structures in the Special Flood Hazard Area (SFHA). This should be done to analyze flood insurance coverage.

☒	Find historic properties and/or cultural resources being added to the plan. Add the following: • A list of team members and stakeholders who participated in the planning process. • The results of the risk assessment and loss estimation. • Mitigation goals that aim to reduce or avoid the effects of hazards. • Mitigation actions that will help the tribe, state, region, or community meet those goals. • Strategies that state how the mitigation actions will be implemented.
☒	Add and document new data you obtain or develop to the next plan update. Mitigation grant applications can use vulnerable structure data (i.e., lowest floor elevation, value, building materials) and similar information. Be sure to document more than one data set (i.e., TEIF vs. Hazus).
☐	Consider using Non-Regulatory Flood Risk Products (NRFRPs). These should help to establish opportunities to speak with local officials. They can help you learn more about specific structures' vulnerabilities within the planning area. They can also point out potential chances for mitigation.
☒	Find gaps or inaccuracies in existing data. These can include natural hazards data, GIS mapping, and research on successful risk reduction methods. Act to fill those gaps. Public agencies are key resources for data and technical information. They include regional planning agencies, geological surveys, forestry divisions, emergency management offices, dam safety agencies, and weather service offices. They can be at the regional, state, and federal government levels. Online resources can also be used for hazard data. The National Climatic Data Center (part of NOAA) is one such resource.
☐	Give more detailed citations for the data sources used for tables, figures, and assessments. These sources should inform the risk and vulnerability analyses. This will not only validate the assessment; it will also make the next hazard mitigation plan update easier.
☒	Learn the potential effects of future conditions. These could be changes in population, land use, weather, and natural disaster frequency and severity. Include details about how changing conditions could affect long-term community resilience.
☐	Consider profiling more hazards. These could be based on the state hazard mitigation plan or other identified risks.
☒	Amend using more updated dam data to more clearly identify risk and mitigation opportunities.

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	**Element C: Mitigation Strategy**
☐	Detail how each community manages the NFIP. Each should comply with the local floodplain ordinance. Each floodplain manager should fill out the NFIP survey. The survey will help identify how their communities comply with floodplain requirements and regulations.
☒	Increase community-level interactions and risk-based discussions. Improve descriptions and connections between the outcome of the risk assessment/vulnerability analysis with NRFRPs and the mitigation strategy. Content should flow from problem identification (risk/vulnerability) to mitigation strategy (goals/objectives/actions).
☐	Use the four overarching hazard mitigation techniques. They are: • Local Plans and Regulations. • Structure and Infrastructure. • Natural Systems Protection. • Education and Awareness. Make sure the mitigation action plan includes actions that fall under all four groups. This will help you achieve a more robust mitigation strategy.
☐	Detail why some mitigation actions could not be done. Reasons could relate to funding, staffing, politics, and more. This helps document obstacles to successful implementation.
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Element D: Plan Review, Evaluation, and Implementation

☐	Use the Five-Year Planning Wheel. It reflects the regular development, implementation and enhancement of your hazard mitigation plan.
☒	Submit annual progress reviews. Plan talks with the state and FEMA.
☒	Review the Local Mitigation Planning Policy Guide. It will show you programmatic changes since the approval of your plan.
☒	Reach out to your State Hazard Mitigation Planner 36 months from your plan's expiration date. That way, you can start the scope of work for your next update.
☒	Seek out an opportunity with the State/FEMA to participate in a Plan Implementation and Grants Development (PIGD) Workshop over the next 5 years.
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	Additional Comments
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